

Plants from Orizaba

- 102 Pines from 10000 to timberline
- 3 Pine from 9000 to 10000 ft.
- 4 Small yellow Composite (next to grass highest)
- 5 " " " with long stem (up to a)
- 6 White rose like flower common in fir woods

Common plants in the lakes
& marshes of the valley of Mexico
are *Scirpus occidentalis*
Distichlis maritima
Nymphaea gracilis
" *mexicana*
Sagittaria variabilis

- Plants from Malinch. Mex.
- 1 Small Composite
 - 2 *Artemisia* sp.
 - 3 Juniper 4000-5000 } 8 mass-like
white flowers & pky
 - 4 Violet 9000 ft.
 - 5 Parasite on Juniper
 - 6 *Taraxacum* 9000 ft.
 - 7 *Lillandsia* (on Juniper)

Vol III

am. up to 1400 ft. grows close to ground -
little above timberline)
at 9500 ft. near potato ranch

Journal

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Genus of Plants
above 13000 ft. in Orizaba

Ranunculus
Draba
Cerastium
Artemisia
Potentilla
Echeveria
Senecio
Cnicus
Veronica
Castilleja
Gratiola

At National Museum
in Mex. Nov. 19/92 photographed
larva of species of Cicada from
Puebla with the remarkable
arborescent fungus Sphaeria
(Formbia) sobolifera, ^(Hill & Watson) growing up
from 1 to 2 1/2 or 3 in. from back of
(upperside of) thorax

The first week of Oct. 1892 when enroute
between Ocambaro & Patzcuaro, Michoacan.
I was surprised & delighted with the excessive
abundance of wildflowers which were out in
excessive abundance & great beauty.
Grasslands of hill slope & meadow land were
shaded with the delicate colors & Mr. Pringle
admitted that he had never before witnessed
such a floral wealth even on an American
prairie in spring. The most abundant
species was a lovely flower of varying
shades of pale pink & rose tints growing
abundantly on tall gracefully swaying
stems and forming exquisite masses of color.

*** Road to Nahatzin, Michoacan -
Oct 8 - 1892

Several small orchards of apples
& pears occupied plots of ground
in the midst of the village - but the
trees were planted ~~so~~ close together
& left totally unpruned so that
the branches intermingled & reach
up in tall slender ~~the~~ shafts after
the ven & resembling a jungle
growth more than cultivated
plants. The luxuriant growth
& abundance of inferior fruit the
trees contained show how well
such fruits would do here
with proper cultivation.
In several yards at the outskirts of the
village the Indians were busy thrashing
wheat with horses drawn about over
it on ^{enclosed} circular thrashing floors.

Elevations from Geog. Com. at	
Jalapa —	Metros
Huamantla	2553
Apizaco	2400
Val. Papocatepall	5452
" Orizaba	5699.7
Pk. Perote (ft 14,047)	4281.5
Iztac. Head 5146, breast 5286, foot 4740	

other men winnowing the grain.
 Following the trail, we passed on
 out of the town crossing a field where
 a farmer was scratching the soil
 with one of the primitive plows and
 then up into a beautiful open
 pine forest. The pines are all
 of P. montezumae & grow to
 from 100 to 150 ft. high with clear
 trunks often 50 ft. up to the first
 branch. The ground over
 this divide is covered with lux-
 uriantly growing sacaton grass
 whenever the forest is most open
 & on the summit of the divide
 is a beautiful ^{open} basin or park
 surrounded by forest-covered
 hills. As we came to the border of this

I heard an odd bird note off ~~to~~ to
the left & a hawk look revealed a
pair of Imperial Ivory-billed Wood-
peckers near the top of a large
dead pine. My assistant was ^{for} in the
tree with the shot gun but my companion,
Mr. Winton (G.B.) was quickly on the ground
& stalked the birds within easy shot
& fired at the nearest one.

Both left the tree apparently unhurt
& as one of them made off through
the high tree tops a long shot with
a charge of B's brought it to the
ground. These were the first
living birds I had ever seen
of this species, & they are fine
birds. Near sunset we came
to the border of the forest on

the ^{rim} of a fine basin-like open
valley in which lies the Indian
(Zarasco) town of Nahuatzen, several
smaller villages.

The valley is very fertile & surrounded
by more or less heavily wooded hills.
Owing to the altitude, some 8000 ft.,
& its being surrounded by still higher
peaks the climate is cool ^{fall} & winter
& frosts occur. A small-eared
corn with small shaped pointed
kernels, something like large pop-
corn, does well here. - ~~as~~ a
large ¹⁵⁰⁰ portion of the ears are bluish.
Wheat also does well here as
do ~~pears~~ pears & apples. In fact
any crops suitable to a temperate
climate. This district was once

a noted robber's range & the
peaceable inhabitants still dislike being
out at night.

Only a few years since the soldiers
raided one of the neighboring villages
and captured twenty-five men
accused of being robbers - all
of whom were sentenced to
prison or more summary
punishment.

The valley is largely devoted
to the cultivation of corn, &
long open roads are left
crossing the fields at right
angles so that at their intersection
a person can command a view
to the borders of the fields. In such
places & also so to command the

Borders are erected platforms, on
2 or 4 upright posts, some ten
or 15 ft from the ground.
From these places watch is
kept day & night over the fields
to keep out thieves & predatory
animals, dogs, coons, opossums
& deer. Frequently a small
^{or thatched} ~~straw~~ hut ~~is erected~~ with
a sloping thatched roof is
erected on these posts to shelter
the watchman. In addition to
these, small huts are usually found
erected on slopes at the borders
of fields to shelter watchmen.
The night shut down on us as
we rode down into the valley which
looked like a deep black pit.

as we descended into it.

At length we came into the narrow
cobble paved streets of Nahuatzen and
winding about for sometime
~~among~~ⁱⁿ the darkness finally found
a man who guided us to the house
of one of the protestant converts
here. My companion on the road
having been Mr. G. B. Winton who
is a methodist missionary on a
visit to this part of his field.

✓
Very long we brought up ~~at~~ by a
wooden fence before a house
from which came fitful
glances of light from a small
fire on the ground inside.

As soon as our arrival became
known men & women came out

head to head

and welcomed us heartily & quickly
cleared out ^a one roomed house for
us to occupy. However, some
others living nearby insisted
that Mr. W. & I should occupy
their house so Mr. L. & our
assistants remain ~~there~~ in
the first house & we went to the
new quarters. We found the
houses used for living purposes
made of woven planks with plank
floors & usually plank platforms
about 3 ft. from floor for
sleeping upon. A smaller building
of planks to one side or in
front of this house across the yard
has a dirt floor with a fireplace

in the center. This fireplace
is surrounded by 3 or 4 stones
+ at one side is the earthen pan
on which tortillas are cooked.
~~The rest of~~ which is supported
by stones at its edges with
place for putting fire beneath.
The rest of the cooking is done
in ^{red} earthen pots placed on
the coals.

After a time our supper was prepared
and a small table placed near the
fire in this kitchen & we did
justice to some meat, tortillas
& coffee. I was much pleased
with the frank, goodhumored
hospitality shown by these poor
people who seemed to take a

heartly pleasure in trying to
make us comfortable.

Soon after we retired to the platform
assigned us & under a heavy covering
of blankets rendered necessary by the
frosty night air, were quickly asleep.

Early in the morning I set about
engaging men to take me up
to the summit of the hills to the
south of the valley where I proposed
camping for a few days. In a short
time I had agreed with a
man with a pack animal to
take my ~~stuff~~ outfit up to
the hills. I also bargained with
a local hunter to go with me & hunt
large game for me. The men then
disappeared as I supposed to get

✓
ready for the trip. I waited
until nearly midday & finally sent
for the men again. The packer came
reluctantly & evidently considered
that the effort of making a bargain was
enough for one day & it was only after
an hours effort that I managed to
get the men started in earnest
to pack up. Then I learned that the
hunter refused to go because if he went
with a protestant the Bishop
would excommunicate him -
(the Bishop chancing to be
in the town at that time).
With the exception of the articles
carried on one small burro the
remainder of my goods were
packed on the backs of a couple

& a boy
of men, who carried the heavy
burdens up the steep mountain
side without difficulty.

It was well along in the afternoon
when I pitched camp under
some pines at the border of a
grassy glade near a small
spring. The tent being put up
I sent my assistant out to
set some traps while I arranged
the camp and prepared some
specimens I had in hand.

The people who had come up with
us left before dark leaving us
to ourselves.

During the night & in the early
morning as long as we stayed
here, ^{occasional} gunshots were fired &

the most hideous whoops &
howls, ^{made} uttered by the watchmen
in the cornfields scattered
over the steep mountain sides
in the forest where cleared
areas were cultivated.

This was to keep the wild animals
out of the corn, I was told by people
from the village. The effect of
these wild cries was wild in the
extreme & the authors of the
noise looked wild & unkempt
as they came to visit our
solitary camp & stare at us &
our work in stupid wonderment.
Few of them could talk Spanish
but they conversed together in Jarraco.
On the third day of our stay we

were visited by a couple of
mounted varaned messengers
from the President of the Council
in the town of Nahuatzen.

They bore a formidable worded docu-
ment setting forth that it had
been learned that strangers
were said to be encamped upon
the community lands and as
their business was unknown
he commanded the duly com-
missioned braver to come
and investigate the motions of
our presence. I explained the object
of our visit & showed them the
specimens at hand & informed
them that I had a letter in my
baggage left at town from the Gov.

of the State recommending me to
the local authorities.

This was evidently satisfactory and we
were troubled no further.

This visit was a precautionary one as
I learned afterwards as the lands here
are held by the community under
the direction of the Ayuntamiento
or Council elected in the village
& under certain laws of the country
unoccupied lands held in
this way by communities may
be surveyed, denounced &
bought by the Government.
As a consequence the communities of
Indians who hold lands under
such uncertain tenure are very
suspicious of the presence of

foreigners whose purposes are not known. I have heard of instances in which surveyors have been shot for attempting surveys in such places. In this locality I found deer to be very scarce owing to the incessant noise kept up by the watchmen in the fields but was gratified to find the great Ivory-bill (Campe. imperialis) common. Our camp was at the foot of a very sharply rising ridge covered with an abundant growth of pines. Every morning at dawn the querulous notes of these birds could be heard as they greeted the sun from trees about the summit. I found that they

made a practice at this time of feeding
on insects found by chipping away
the tops of rotten logs on the hillside.
Then as the sun descended they flew out
and spent the day wandering about
among the scattered & often dead
pines over a partly cultivated
truch lying a mile or so across
& the adjacent hillsides. They were
not particularly shy & I was killed
on this brush during our stay.
They seemed to be much attached
to one another & if one was killed
its companion would not leave the
locality. They were excessively ter-
racious of life & was very difficult to
kill as a consequence.

Our camp was at about 8500 ft. & I found an Arvicola, a Sorex, Oryzomys, Sitomys, & Reithrodontomys common as were also the Geomys common to the high pine belt. A large Mephitis was found in a cornfield & also a Procyon. A few squirrels (Sciurus) were found here ranging up to 9000 ft. They & the same large Lepus found in the woods at Patagonia occur sparingly here. Having completed my work at this camp we packed up & descended to the town. Mr. Winton & I took a hunt on the way down & as it chanced I got on the slope of a cañon which was so steep & covered with pine needles that my shoes soon became so slippery

that I fell repeatedly & could only progress
by making a sliding run from
one tree to another diagonally down the slope.
In several instances where I missed
my goal by falling I would bring up
some distance down the slope pretty
thoroughly shaken up. After over an hour
of this I reached a trail & soon joined
my companion as he descended the
point on an easy trail.

In the midst of the second growth
pines near the summit by the border
of an old field he had found a magnificent
white rose bush growing up among
the foliage of the pines & marking
the site of an old watch hut.

The strange presence of this flower
is an illustration of the love of flowers.

which is characteristic of Indians
in most of the country I have
visited. I saw large fine white &
magnificent deep red roses ~~in~~
~~spots~~ growing in wild luxuriant
brandy in spots in Nahuatzen & other
villages & the bush on the hill had undoubtedly
been planted there by the people who
cultivated the field.

✓
From the same hill came an ancient
Copper ax (of the same pattern as those ^{seen}
in use today) which I bought in Nahuatzen
from a ^{native} Silver Smith in Nahuatzen.
I bought several ear rings of the
patterns in common use among the
people. The smith works with a rude
bellows & charcoal fire - a pair of scissors,
tweezers, hammer & one or two other small tools

^{troughs}
Painted ^{troughs} of Uruapan

implements producing remarkably skillful results.

The houses at Nahustlan are like those in the village already described.

During my trip in the hills, one of the men of the village had returned from a trip to Uruapan bringing from there a stock of wooden troughs of various sizes lacquered & painted with flowers by the Indians of that locality.

Several were bought by me. He was on his way to Morlia with them.

The Priests of this district are peculiarly oppressive, to judge by the tales I heard. Still, I got most of my information from a missionary, & I find that this is not the best source to go for such notes if one wishes to be reliable.

The valley of Nahuatzen is a long, irregular basin among the wooded hills & its drainage is to a small stream flowing down by Uruapan.

The hills rise to a height of from 9000 to 9800 ft. about this basin there is covered by a fine growth of Pinus montezumae. On north slopes of the higher hills are some Abies religiosa & Alnus & abundant lupines of rank growth under their shade.

On Oct. 15th we returned to Patzcuaro, taking a ~~boat~~ large canoa with 4 paddlers from the shore of the lake next Nahuatzen.


Patzcuaro

The trip across the lake was an enjoyable one with the changing effects of the evening skies on the surrounding hills making a most fairy-like scene as the rich colors of the sunset lit up the eastern shores & hills with purple & light, slowly fading to the deep black of the night on the forest-clad hills. It soon became so dark that we were isolated on the water & the swaying white clad forms of our paddlers moving dimly in unison seemed to emphasize our isolation. Finally the lights of the Hacienda showed up & we were soon ashore.

The canoes of the Tarasco Indians on Lake Patzcuaro are of peculiar shape

Instead of the shear being from bottom to top it is reversed so that the top of the canoe is several inches ~~narrower~~ ^{narrower} than the bottom.

a cross section giving an outline about as follows:-

 They have a long shear at bow & shorter one at stern.

They are dug out of single tree trunks & often are 30 or 35 ft. long &

carry a ton or more of freight.

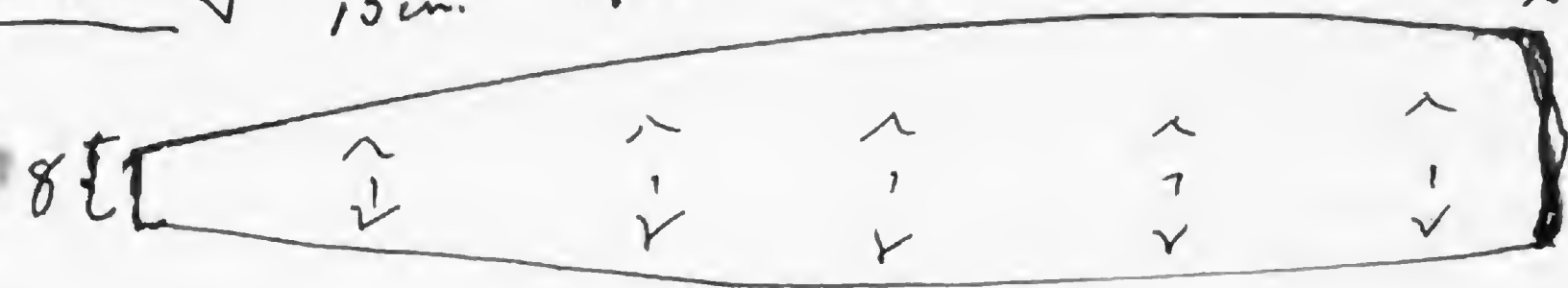
The ^{outside} measurements of a canoe

16' 1/4 ft. long ~~as~~ ^{and} with walls from

2-3 inches thick were as follows:-

Commencing at bow & taking a measurement every 3 ft. with an extra one at stern.

Width at top. 15 in. 17 in. 18 in. 19 in. 21 in. 21 in.



Width of bottom 21 in. 27 in. 28 in. 29 in. 26 in. 21 in.

Depth perpendicular inside 10 in. 18 in. 17 in. 17 in. 12 in.

at both ends the canoe has the thickness of the timber about 4 in. In stern the bottom is nearly a foot thick & a small narrow seat is cut inside a foot below rail for steersman.


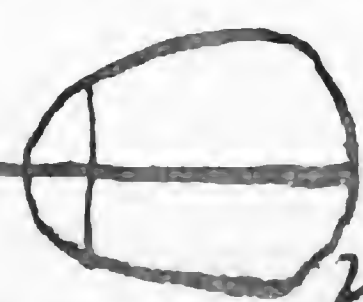
Small round bladed paddles are used with blades from 8-10 in across & almost round or slightly oval at end of a ~~short~~ round handle about 6 to 7 ft. long.



Many of the Torasco Indians about this lake gain a living by fishing

They go out singly in small canoes with a large dipnet some 8 or 9 ft. across, with a slender handle about 15-18 ft. in length.

They thrust the net down to the bottom & hold the handle in an upright position for several minutes & then slowly lift the net with any fish in the ^{shallow} ~~bag~~ that may have swum into its vicinity.

In this way a limited quantity of ^{small} fish are taken daily. The handle crosses the hoop of the net & is lashed to each side giving the wooden frame stability. They are shaped thus  or thus  with a crossbar near upper border.

A few Larus delawarensis were seen on the lake, & about the border on the dense growth of submerged water plants at any season of the year may be seen Jacanas, with many Coots by the patches of rushes. The Jacanas have a curious habit of raising their wings high over their backs & after holding them thus for a short time fold them very deliberately - thus showing off the handsome yellow markings of their quills. This is a very shallow lake with no outlet but only separated from the drainage of the river flowing by Morelia by a low ridge a few feet above the lake & evidently of volcanic origin.

*
About the borders of the lake at Patzcuaro the cattle
make a practice of wading out in the shallow water
to feed on lily pads & up. shoots of rushes etc. & it
is common to see several wading about feeding
in this manner with the body entirely submerged
or only the upper half of the outstretched head
(nose & ears) above water.

so that this lobe is of recent geol-
origin like those seen in Jalisco.
This is a very rich locality
for the genus Lepus as no less
than 4 species occurring within
a distance of 4 miles & a vertical
range of 400 or 500 ft.

* The Armadillo ranges up to 8000 ft.
here and the Coon "Procyon"

^{Syn.}
^ Procyon, Sperm. macrodon
2 species of Geomys ^{Sciurus} & other
mammals are ^{more or less} common.

* The birds are still more varied
& rich in unexpected forms.
In July I found 5 species of hummers
among the pines with particular
proclivity for the flower stems & basins
of old craters among the forests of pines.*

* In fall & winter about Patzcuaro the Salvia purpurea is the main food plant for hummers as it is in ^{in woods} blossom for months & abounds on the hills. In summer in the old crater Lithospermum strigosum is the main food plant for these birds & also for Diglossa baritula.

** An american engaged in the lumber business at Lake Patzcuaro informed me that the Pinus montezumae which is the lumber tree here will yield about an average of 1000 ft. ^{good} lumber.

These hummers are Eug. fulgens, Amazilia beryllina, Basileuterus leucotis, Coligny clemenciae, Petastophora thalassina. Here join such species as Campephilus imperialis, Aphelocoma sieberii, Atlapetes pileatus, Guerrermon virenticeps, Diglossa baritula, Picolaptes leucogaster & various more northern forms, Corvus cryptoleucus, Tayonius sayi & S. nigricans - &c. &c.

In the lake Nymphaea mexicana, Typha latifolia & Sagittaria & Scirpus 2 or 3 species of Pinus - & of Quercus & Cornus, Arbutus, Salix, Fraxinus and Alnus make up the main tree growths. ***

The Tarascos are the ancient
holders of this soil and today exist
in the state of Michoacan to the extent
of over 200,000 individuals. About
the shores of Lake Patzcuaro they have
numerous villages & supply the
market at Patzcuaro with fish & all
kinds of garden vegetables - apples -
pears, & peaches etc.; dig the ^{stiff} roots of
the sacaton grass which are
exported for brush-making, & make
rush mats & a variety of articles
from the fibre of the maguey.
On market days at Patzcuaro they
come swarming across the
lake on women, in hundreds of
their ^{oddly shaped} canoes and occupy the plaza
of the town with their wares which they

pack up the two miles between
the lake & the town on their backs,
men & women alike carrying heavy
loads & each with their paddle in
hand. They carry their backloads
~~by resting~~ their burdens on their hips
with a band across the chest in
place of on the forehead as is the case with
some Indians. They are usually
~~bare~~ headed but many have the common
conical straw hats.

The men have nothing distinctive
in their costume, wearing a ~~fine~~
white cotton shirt & trousers with
sandals or not.

The women wear a white chemise
with short sleeves & commonly ornamented
with crossed patterns of embroidery.

in blue or red on shoulders
& breast. A heavy petticoat
of home manuf. cloth of dark, black
blue & white ^{longitudinal} stripes is worn. This
is a long strip of cloth about 3 or
4 ft wide which is wrapped about
the waist hanging down near the
ankles; then the surplus, which
is often very considerable, is made into a
series of folds 3 or 4 in. deep &
bunched against the back &
all held in place by a long woven
belt with fringed ends usually of
blue or black & white colors.
worn in a pattern like a
series of gorges.

The number of folds of superfluous
cloth in the fold of the petticoat is said

to evidence the wealth of the owner.
A hand-woven shawl somewhat
similar to the petticoat in pattern,
is thrown in folds about the head
or over the shoulder & completes
the costume. They wear the
earrings of Geesecut pattern
already mentioned & braid their
hair in a couple of short queues
back of the ears with ends joined
at back of neck. As a rule they
are barefooted.

As a rule the Jarasas of this district
are short, rather stoutly built, with long
black hair. Their faces are dark &
very plain, with square, coarse &
heavily modelled, with a dull
stolid look rarely showing vivacity.

in speech or gesture.

The Aztecs carried on long unsuccessful wars against the Tarascos in ancient times. Their principal town in former times was at Tzim-tzum-tan. on the shore of the lake where exists a considerable town of his people now. In many of their villages the community is pure blooded although in most places a mixture with the conquerors can be traced. Many of the pure blooded people know little or no Spanish & they retain many of their old ~~superstitions~~ beliefs although nominally Catholics.

Patzcuaro
to
Salazar

From Patzcuaro I went by Mex. Nat.
R.R. to Toluca where I stopped
to secure a letter from the Gov.
to the local authorities.

Near Morlia on the way I saw
23 yoke of oxen each with its
driver & a wooden plow at work on
a field of not over 10 acres. A man
on horseback stood at one side over-
seeing the work.

~~Toluca~~ Passing Lake Quizco,
Mr. Pringle told of the odd ~~corn~~
species of corn peculiar to
that locality, Zea Canina or the
"mais Coyote" of the residents.
The corn grows commonly about
the foothills near Querendaro & even
mixes in the fields with the common

cultivated species. It reaches
a height of 6 or 7 ft. on cultivated
ground but is much smaller on
wild land where it has to battle for
its own existence. Its most
striking peculiarity is in possessing
^{one} ~~one~~ or more ears in the axil of every
leaf from base to top of stalk.

Having secured my letter from
the Governor's office in Toluca I
went on across Toluca Valley to
the Station of Salazar at an alt. of
10300 ft. on the ^a pass between Toluca
& Mexico. This is a miserable little
settlement of woodcutters
on the summit of the mountain.

After some trouble I found a small
hut in which we arranged our

Read over the
notes for November and
decide where the solution
on the back of the tiller
page will best fit in.

Salazar Oct. 21 - Nov. 7, 1892
material and began work on
October 21st

The weather during all of our
stay in this locality was cold and
damp with numerous cold
rains during the first week.

Every morning ^{at day break} the clouds shut in
over the mountains here en-
closing us in a heavy vapor
that made the grass & bushes wet.
At 8 or 9 o'clock the clouds
would dissipate or drift away
to reform again in the afternoon.
Whenever the night was clear,
a sharp frost occurred.

The place in which Salazar is located
is an open park-like slope 2 miles
across surrounded by heavily wooded

hills and rising from 300 to 1200
feet higher. The park-like
open country is covered by
a ~~short sod~~ close sod & watered
by many springs near its upper
border. These flow with the main
slope to the west into Lerma
Valley. The smoke of the
Charcoal pits rise everywhere
about on the dark wooded hillsides,
showing pale against the sombre
foliage of Abies religiosa or
Pinus montezumae which are
the most abundant trees.

Notwithstanding the cold raw climate
on these ridges, mice abound
here in greatest abundance
and seven species were secured.

including 1 Sorex, 1 Blarina, 1 Arvicola,
1 Reithrodontomys, 1 Dryomys & 2 Sitomys.
A Neotoma, Sciurus & 3 species of
Geomys make up the main
list of small species.

I was surprised to get here a
specimen of the common Diposaurus
as well as a Mephitis ^{and a} Conepatus.
These mammals were all most
abundant on the wooded hillsides
where the ^{large} timber did not form too
heavy a shade so that a good
growth of smaller plants could
thrive. From 9000 to 10000 ft. seemed
to be the most populous area.
Birds were more scarce,
as the summer residents had
migrated.

Small flocks of Otocorys &
Auturus with larger ones of a
large species of Alimophila
frequented the park.

From a high ridge ^{fully} 11,000
ft. a couple of Dendrocygna macroura
were brought me by a hunter.

From the summit at this point
a fine view is to be had out over
the ^{Lerma} Lerma or Zoluea valley which
has an altitude of 8630 ft., and
containing the large, shallow
grass or rush covered Lerma lake,
the head of the Lerma or Rio Grande
the longest in the republic.

Beyond this to the west rises the
Vol. of Zoluea (Xinantecatl, or naked man)
15815 ft. high.

To the east the slope is longer to
the valley of Mexico which is
~~about 700~~ about 700
ft. lower.

On the summit of Salazar, in
the open park, was fought one of the
early battles of ^{the} Mexican independence
and the spot is marked by
a monument.

These mountains are noted
as being the former haunt of
bands of Brigands. The highway from
Mex. to Toluca ^{Crosses} crosses here
and, even as little traffic as
passes over it today, it is necessary
to keep a company of soldiers
at Salazar who picket the road ^{at} ~~at~~
several points daily.

The people living at Salazar Station occupy small, filthy, wooden huts and swarm out at the passing of every passenger train. The women sell ~~the~~ pulque and a variety of cooked food to the passengers and several professional beggars gain their subsistence by the charity of the passengers.

In addition, a number of men are working here loading cars with ~~and~~ fire-wood & timbers.

There is quite a business in sending out ties from fir timber which only lasts a very short time when laid. From Salazar I made a short trip back to San Luis Potosi to secure some spec's of *Protophiza bilineata* & *Callipepla squamata*.

Nov. 7, 1892, Salazar -
Returned to Salazar today learned
that last eve. while returning to camp my
assistant had been set upon by 5
robbers who met him in the road at dark
& knocking him down with a stone, took
his gun, watch & other small articles
he had upon his person. He saw 3 men
coming toward him in the road & as they drew
near saw that they intended mischief, so he
dropped his gun into position at which
moment he was seized from behind
& struck. ~~The next morning~~ After the
robbery, the men ran off into the
bushes. Early the morning of the 7th
the Prefect of this District passed
Salazar in the train & was notified
~~that~~ of the robbery.

That evening I rec'd a telegram from
the Prefect saying that the robbers had
been caught & articles recovered.
The next a.m. (8th) I went to hear
with Goldman to make our depositions
in the matter. Then we found nearly all
the articles & after the depositions were told
that Goldman must remain here under
charge of the ~~Dr.~~ called in by the local
Judge until the cut in his forehead
had healed. My protests against this useless
proceeding only brought a shrug of the shoulders
& the intimation that if I came back
in a week he might be permitted
to leave. At the end of a week I
was there again but was again put
off for another period. At end of this
latter time when awaiting Goldman's

arrival in Mexico he telegraphed that
they refused to let him go without paying
the Dr. for his services.

As these had been forced upon him by the
Judge neither asked or required by us
I considered this a palpable imposition
and at once laid the matter before the Am.
Chargé d'affaires (Mr. C. A. Dougherty)
and he laid the matter before the Secy
of State here (Sr. Mariscal) who
said that while the law authorized
a wounded person being kept
within jurisdiction of the Judge it
did not authorize any bills for services
to be enforced against the victim.
In a couple of days Goldman was
permitted to leave & on his arrival here
he told me that the local authorities

were quite decided that he should
pay the bill of the Dr. before they would
permit him to leave & were rather
indignant when he showed them my
telegram telling him not to pay the
Dr. Two days later when they had
heard from the Secy of State he says
that they suddenly became very polite
& returning him the articles told him
that they had nothing to do with the Dr's
bill & that he could leave whenever he
liked. Two of the men who robbed
Goldman confessed & claimed that
they were the only ones engaged in the
affair! While I was in Lima on
the 8th attending to this matter I
heard several recent robberies in
that vicinity spoken of and the

Porfret told me that two others had taken place on the Volcans mts. the same day Goldman was robbed. One of the victims, a miserably poor old man was in the Judges office still was there & said he had been robbed of a few little articles he had bought at market. The robbers had struck him on the head with a machete cutting his scalp open. All of this on the main public thorough-fares between Toluca & City of Mexico shows how absolutely essential to even partial security is the patrol guards of soldiers that are seen almost everywhere. This same week the papers in the city published an account of a party of armed robbers attacking some merchants on

the road about 9 miles out of the
City of Mex. near Tlalpam but
the travellers beat off their foes
by a stout resistance with their fire-
arms. Although the country is in
a state of safety & quiet as compared
with its former condition yet there
are robberies going on continually
not a tithe of which ever get to the
ears of the public even here in the
vicinity of the occurrences.

The authorities are not communicative
and only cases that are notorious
from their boldness or other causes
come to the notice of the public.

As most of the foreigners live in towns or
when they travel go in a way that gives
but little risk of molestation they are

not aware of the really dangerous
state of the country. My work requiring
residence for weeks in the remote
districts & solitary hunts among the
hills lay the matter in a different light
the continual warnings that are given
me by the Prefects whenever we go of
the danger a single person is in when
going about in the country shows the true
state of affairs. The authorities do all
in their power to insure safety but
it is difficult to curb the spirit of
rapine that decades of bandit life
has inculcated in the half savage
inhabitants of indian villages in
wild hills & mts - to whom human
life would not weigh for a moment
against the value of a day's drunken

indulgence if the frogs
speedy detraction was removed.

Jacubaya

Jacubaya - Nov. 1892 -
While waiting for the ~~not~~ release
of my assistant from his virtual
arrest in Lerma, I visited
the Museum of the Geographical Exp.
Com. at Jacubaya under charge
of Prof. Ferrer-Perez.
They have a much better collection
than the Nat. Mus. - better in
every way & more complete
with large series of skins of
birds which, unfortunately, have
been collected with more idea
of number than some more useful
plan.

Prof. F. Perry has studied in
the U.S. Nat. Mus. & in Europe
& is doing, in consequence, some
much better work than has ever
been attempted by any Mexican
naturalist. His specimens have
the locality, date & sex marked on
a label, whereas in the National Mus.
Birds - mammals & other things
simply bear the legend "Mexico".
However, the naturalist there at present,
Prof. Herrera, appreciates the
value of such data although
the specimens placed in his charge
are without them.

Tacubaya is a poorly located
place on high ground west of
Chapultepec & should have been

the location of the city of Mex.
when rebuilt by Cortez, but for
a curious blindness on the part
of the Conquistadores who re-
built the city on the old marshy
foundations with a beautiful
site at the border of the marsh close
by. Indeed, when the new city
suffered disastrous floods from the
waters of the lakes about it in later
years, the Spanish kings suggested
its removal to the higher ground
but it was then so late that the
vested interests in property were
too great to abandon even in
the face of flooded streets.

Today the descendants of these
short-sighted founders are hard

at work expending many millions
of dollars upon the most enormous
system of local drainage in
the world to try & preserve the
city from ~~the~~ danger of ^{ruinous} minor
floods. As the land on which
the city is built is the soil of
the old marshy lake & its in-
crement by the accumulation
thereof of debris & vegetable
growth & decay, it is ^{saturated with water} ~~saturated~~,
& ~~within~~ ^{within} from one to
four or five feet of the surface.
This is abundantly evidenced
by the ditches full of stagnant
water that border the city in
all the suburbs.

There is considerable difference of opinion regarding the effect of this drainage upon the city.

Some claim that to draw the water out of the soil on which the heavy buildings stand will cause the foundations to sink & do great damage & others contend that the buildings will not be affected.

At any rate the drainage, if a success, will render the city much healthier by enabling the improvement of the sewer system. The city is becoming rapidly modernized & the new quarters along the western border of the town are building up with handsome two story stone front houses.

that show an attractive
union between the old style of
architecture & the more modern one.

It is in evidence of the greater
feeling of security for life & property
that prevails at present that
many fine houses are now built
with large windows on the street
which are only protected by a
light iron railing across their
lower half to serve as a balcony
rail, when heretofore every
window has had a strong iron
railing from top to bottom.

The city is beautified by a fine
Alameda and a beautiful
avenue or inner promenade,
the Paseo de la Reforma

which leads straight out to
the Castle of Chapultepec on
the west of the city.

There are several markets in
the city where one may see
a curious & interesting con-
glomeration of people from
the pure blooded Spaniard
& the various degrees of the
mixed race down to pure
blooded Indians who still
wear their characteristic
costume & speak little or
no Spanish. It is a
common thing to find
Indians living about
the valley & its neighborhood
who do not talk Spanish

and their own tongues
are used habitually among
themselves. There are
various tribes about here, the
Aztèques, Otomies, &c., &c.

At the market of "San Juan
de Dios" A number of
women of the "Otomí" ?
tribe in their ~~characteristic~~ peculiar
costume of hand-woven clothes
may be seen selling ~~clothes~~
tortillas or other small
articles.

At the market of the Mercedes
? S.E. of the main plaza
by the border of the canal &
in the midst of the poorer

quarter of the town, surrounded
by hundreds of pulque shops
with gaudily ornamented fronts
& interiors, there is a great
gathering place of Indians
of Aztec descent from the
valley who bring in here wild
ducks by the thousand from the
marshy lakes of the valley
where they are snared & killed
by the ancient methods
practiced before the conquest.
Fruits & vegetables from the
cool table lands and down
the slopes to the tropics are
also sold here on mats spread
under the shade of other mats
or on umbrella-like wooden

frames. At the same time,
the vendors of all manner
of cooked food do a thriving
trade. Tortillas fried in oil,
chile sauce, ~~or~~ rolled
& filled with a chile salad,
meats of various kinds,
Sheep & goat heads boiled
or roasted with the hair
still on & just as they were cut
from the carcass are a
favorite morsel.

Long rows of women
are busy on the pavement
picking ducks or chaffering
over the sale of their wares.
Here the squalor of both buyers
& sellers is often swelling

at the same time that
it has a fascinating picture-
queness. ^{Brown} Naked infants
sprawl about blinking in the
sun or ~~staring~~ ^{tugging} at the freely
exposed ~~breasts of their mothers~~ ^{exposed breasts}.
Curious dogs prowl cringing
about to snap up stray morsels.
& at slack moments the
women squatted by their
wars gossip with one another
or search for vermin in
the heads of their offspring.
Amid the bustle & stir of a
constantly moving crowd
of purchasers bearing baskets
or sacks for purchases rise
the calls of the vendors.

~~At~~ The interior of the market
is divided into stalls & is
more orderly while less
picturesque. At same time
the show of fruits ~~etc~~ is an
attraction one.

In all the adjacent streets
are great numbers of pulque
shops where men & women
drink pulque all day long
& at night the streets are blocked
by a teeming mass of the lower
classes who become drunk
upon this wine of the maguey
as they call it in popocatepec.
The outer walls of these shops
are usually gaudily painted
& ornamented & bear various

fauciful names such
as La Coronacion de Baco.

La Reforma del Fortin.

El Sueño de Xochitl.

Gabinete de Aseo.

El Invierno.

La Hija de los Leones.

El Arbol de Paraiso.

La Carata Roja &c. &c.

Very often with gaudily
colored symbolical painted
figures. Within there
is a wooden counter
with shelves behind on
which are drinking vessels
some of glass, clay & gourd
& frequently the wall behind
this bar has various brilliant

colored scenes painted
thereon.

Shops ^{is stores} of ~~various~~ all
kinds are usually known
by some name, one of the
most absurd being
that borne by a meat
shop where pork was
sold. This from the suggestive
legend, over its front, of
"La Trichina".

Turning to the higher class of
society, it is interesting to
note the almost universal
adoption of foreign fashions.
Govt. officials & prof. men
wear silk hats and the derby
is also an very general

use. The old broad rimmed
sombreros, ~~tightly~~ fitting
trousers with silver ornaments
while attracting little attention
are going out of use rapidly
in town & are mainly worn
by visitors from the country
& often by Coachmen of wealthy
people who keep up this
costume for effect.

The ladies are nearly all
dressed in hats or bonnets
& it is ~~not~~ unusual that the
mantilla is in use except
among elderly ladies who
cling to old usages.

As ~~the~~ noted of the ladies
in Guadalajara, so here

the cane is carried by all
who wish to be considered
in the mode. From the cane
most affected is one with
a large head or knob & is
held by the middle with the
head down & behind & the
small end up & projecting
at an angle of 45° in front
of its owner who walks with
short jerking motions of the hand
that is likely to cause some
apprehension for one's eyes
along crowded streets.
As a rule, the smaller & more
insignificant the brass &
the larger the cane & knob
until at times I have seen

greatly entertained by the
amount of wood carried
by some self-satisfied youth
of very slender physique.

There is a considerable colony
of Americans in the city of Mex.
They are mainly railroad men
& are, as a class, the same
men that one finds throughout
the newer west, ^{young} bold, hardy &
adventurous.

There are a great number of
beggars everywhere in the streets.
Deformed or crippled beggars
are given a license on application
to the city authorities - but they

law prohibits unlicensed
begging & arrests are continually
made of such beggars but
still they persist.

The lottery ticket sellers
also swarm on the main
thoroughfares & importune one
on every hand to purchase
tickets. These "dilletos"
are licensed & each wears
a number. They are men
women & children & many
cripples gain a livelihood
by this means.

There is a shameless profligacy
among many of the beggars
who are abundantly able to
work that is not likely to create

much sympathy.

It is noticeable among the lower classes of the table-land region that there is but little evidence of self respect among them. They cheat, lie & beg with utter shamelessness & seem to feel that to get a penny by such means is a commendable action. This must arise from the state of peonage they occupied so long & the position they now occupy of ignorant hopeless servitude.

In a recent report of Señor M. Romero, ~~he states~~ Secy of the Treasury, he states that, owing to the cheapness of

labor rather than, Mexico
cannot expect to draw to itself
foreign immigration such as
goes to the U.S.A., but must
educate its Indian ~~for the population~~
to become citizens of intelligence
enough to build up the state.
This is a fine conception but
puts a herculean task before
them. The efforts of the government,
however, are directed toward
popular education and every
friend of the country must wish
them success worthy of the
enlightened desires of the rulers.

Halpam
(Mexico)

Halpam D. F. Mex.

The last of November I rented a couple of rooms at the town of Halpam 9 miles south of the city of Mex., at the foot of the mts. of Ajusco and moved out there to work that locality.

The town is located at the border of an extensive lava bed known as the "pedregal". It extends from the volcano of Ajusco down the mt. slope & out upon the plain or valley to the town of San ^{Angel} some 10 miles or so. Its surface is extremely rough & broken with deep pits & cracks here & there. Whenever the surface has a little soil,

various plants have sprung
up among which the largest
are Schinus molle and
Opuntia sp? Others are
Prunus salicifolia, Eupatorium petiolare,
Stevia paniculata, S. salicifolia,
Notholaena fruginea, Hook. } From
Chilanthus microphylla }
Stevia subpubescens.

" Tomentosa, Lorselia glandulosa,
L. coccinea, Verbesina salicifolia,
Piquiera trinervia, Senecio salignus,
Baccharis pteronioides, &c. Asclepias lin-
aria, Senecio oreox, Montanoa
tomentosa, Brickellia Cervantesii
B. wronicaefolia, Salix Bonplandiana
Alnus acuminata, Populus alba,
P. nigra.

And 2 Lepus

The mammals found among this area of broken rock were a couple of species of Sciurus, a Neotoma, Civet Cats, a Urocyon, & a Spilogale. Along the eastern border of this lava bed is an almost equally extensive bed of fine volcanic sand which extends down the slope from the vicinity of the volcano out upon the flat ~~where~~ covering to a depth of from a few inches to several ft. the old lava bed deposit of vegetable mould. In this sand at the border of the plain are great numbers of a small yellow Perognathus & a small Dipodomys, with a few Sciurus sonoriensis, Spermophilus mex. & S. macrourus.

Thalpa, like all of the small towns in the valley of Mexico, is largely made up of Indians & mixed bloods. The market day is Sunday & the people who bring in the fruit, vegetables, &c., are all Indians, some from various parts of the valley, & others from Morelos.

Among other things for sale I saw one man who had some 30 or 40 spindles & whorls of baked clay. The spindles were about 15 inches long & the size of a lead pencil & were thrust through the whorl the latter being fastened about $\frac{1}{3}$ the distance up from the

Corysa punctata & }
Notonecta glauca are two
species of bugs found in the
lakes of the valley.

butt of spindle. Among other
things for sale were great
quantities of a species of
water bug
which is caught in the shallow
water of the lakes & canals,
dried & brought to market
here & elsewhere about the
valley by bushels in sacks.
With the adult insects they
were at the same time selling
the small, grayish white eggs
of this insect in almost
equal numbers.

The people told me that the insects
are sold for bird-food, but that
the eggs are cooked & eaten by
themselves as a delicacy.

"Son Bueno para nosotros, crist-
ianos" as the Indian market
man put it.

The nights & mornings were
sharp & frosty all through Dec.
at Talpam & the leaves
of *Alnus acuminata*, *Populus*
albus & *P. nigra* fall by the
middle of the month except
in sheltered spots.

The ^{common} people here dress in the
usual cotton cloth costume &
a serape & on several occasions
when my assistant or I were up
an hour or more before day-
break, several men were found
each time sitting on the cold
benches of the Plaza - silent

& closely wrapped in their
serapes waiting for the rising
sun to warm them up.

The houses of the poor class
are chilly & often damp & the
owners are out early in the
morning to take a warming
from the earliest rays of the sun.
In the city of Mex. as well as
in the smaller towns the
houses of this class are, as a
rule, mere dungeon-like
adobe boxes with only a
heavy plank door for admission
of dim light. When the owner
has advanced ideas, he may
have a window cut in the wall
with wooden bars across.

These houses have ~~earthen~~
floors & are very often damp
from the moisture of the soil
as well as from the constant
sweating that the people are
in the habit of giving them.
While at Tlalpam I made a
trip up to the village of Ajusco
which lies at the n.e. base of the
mountain of the same name.

The village is a rambling
affair of adobe houses roofed
with ~~the~~ pointed-shape covered
roofs. The people live by
cultivating fields of corn on
the loose, sandy, very poor soil
up to an altitude of 10,000 ft.
and by cutting wood on

the adjacent out. side.

The magnum grows to a large size up to about 10000 ft at this place, but little else is found that does not show the effect of the poverty of the soil. The people of the village & vicinity are Indians & have not a good reputation.

They showed their interest in our work by trying to follow my assistant on several occasions while he was setting traps. Their tracks were seen where they had followed the trail on the out. but had lost it on a rocky hillside. Three of them started to go up to my ass't in a suspicious manner on the out. one day & he threw the

muzzle of his gun in their faces
whereupon they took to their heels.
Above the village of Ajusco at
at least 10000 ft. I was
surprised to find Dipodomys
phillipsi not uncommon in
the sandy ground close up to the
main base of the mt.

The country was much drier
than at the same altitude
~~at~~ ^{on} last traces at Salazar.

The Volcano of Ajusco is a
Crater situated at about the
same alt. as the village just
at north base of the mountain
proper which rises some
2000 ft. above it & is not a volcano
at all. This is another example.

of the fact that I noted at the Vol.
of China. The Sierra Nevada
of China is the main mt. &
is not a volcano. The volcano rising
on the southern base of the main
mt. at an altitude of about
8000 ft. has built up a cone
to over 12000 ft. being still a
couple of thousand feet
below summit of main mt.

At Ajusco the Vol. cone & crater
are at north base of mt. &
its energy was mainly spent in
pouring out the great lava bed
which flows down to Tlalpau and San
Angel, with the ashes that lie
along the eastern border of the upper
part of the lava bed.

In further illustration of this
subsidiary character of volcanoes
is the fact that Iztaccihuatl
is not a volcano but is a
rugged mass of porphyry
rising to an altitude of a little
over 17000 ft. with the cone
of Popocatepetl lying just
at ~~the~~ the southern ^{end} ~~border~~ of
the long high porphyry ridge of
which Izt. is the culmination.
The summit of Pop. has built
itself up by successive eruptions
from a considerably lower
elevation than the peak of Izt.
until it is now some 700 ft. higher

✓ 1
We returned to Talpam just
before Christmas & found
everyone preparing to celebrate
the night. For nine ^(?) nights
before Christ. eve the Mexican
families celebrate what is
called. ~~making~~ "Hacer Posada".

A kind of altar is built up on
a table at one side of the room
and covered with moss, fir twigs
etc. forming a bower of greenery.
Over this ~~are~~ ^{are} scattered little images
of various domestic animals
besides tinsel wire, paper flowers
rather bright decorations & before
this candles are kept burning in
the evening. Each evening a small
Cradle like litter with an image

of the virgin & a ~~ten~~ small
porcelain doll representing
an infant were carried about
the room by the women & children
of the family, the procession led by
lighted candles, & ~~the~~ what
are called pasada songs are
sung. Short halts are made in
front of doors while the singing
is kept up & then the procession
moves on around the room. This
is supposed to represent the pious
efforts of Joseph & Mary to find an
inn (Pasada). On Christmas eve
the making Pasada is wound up
by the placing the virgin & child
in the bower already described &
which represents the stable.

This is followed by merry making,
distribution of presents & the
tossing of a large gilded &
ornamented clay pot of
candies which has ^{been} hung from
the ceiling

The main Plaza of the city of
Mexico the week preceding
Christmas is a curious sight.
The broad streets are crowded
with wood & canvas booths
while hundreds of Spanish vendors
encircle these & the display of
huge, absurd paper dolls made to
represent - usually in caricature -
various classes of people - boys
or men marching about with
rows of these ^{by their heads} hung along a pole

resting at each end on the shoulders
of a bearer. Others carry one or
two dolls at the end of a long
pole held high in air.

The brilliantly ornamented *pasada*
jars are carried in the same
way. Fruit, nuts & sweetmeats
from all parts of the country
are here in profusion &
toys without number.

The vendors are continually shouting
their wares & a crowd of thousands
of spectators & purchasers with
rager wide eyed children of all
classes of society fill the space
about this fair until it is only
by considerable effort that one can get
about. In the evening the scene is

Still more fascinating as it is brilliantly lighted with lamps, & pitch pine burning on iron brasiers or on the ground throwing a fantastic glow over the strange assembly. The multitude is good natured & all seem imbued with the spirit of the occasion.

The open air vendors are all of the poorer classes of Indians, Aztecs & Otomies, & deal in joints, peanuts, sugarcane, paper dolls, ~~and~~ sweet cakes, candies & are ragged, dirty & unkempt. Their half naked children sprawl about on the pavement by their sides or sucking

infants tugging at their mothers
bosoms in calm unconcern of the
multitude.

Thousands of people ~~and~~ men women
& children of all classes gather
about these booths & a lively traffic,
in all manner of Christmas toys
and gaudy ornaments, is carried
on. All are good natured &
smiling - the children with wide-
eyed delight gazing at the
multitude of toys & made to
please their fancy.

In the evening a band playing
in the centre of the plaza adds
another feature to the scene,

On Dec. 12th occurs the annual pilgrimage of Indians to the Shrine of the Virgin of Guadalupe on a hill about 3 miles north of the city of Mex.

I found the plaza des Armas lively with hundreds of people embarking on the street cars for the village of Guadalupe.

Taking one of the cars I joined the throng. A broad road leads from the city straight out to the hill of the Virgin.

It was thronged with wayfarers, on foot with numerous mule carts loaded to overflowing.

These were covered with a tilt but from under the lifted edges

many bright eyes peered
out at the lively scene as they
rumbled slowly along. Every one
had the gay air of a holiday maker
and jokes and laughter were
heard on all sides. These pilgrims
were dressed in their holiday dress
the men in snowy white which
usually by brilliantly colored
serapes. At the border of the
village of Guadalupe all teams
are stopped & thence on one has
to work a slow passage through a
dense but good natured mass
of people. The town was decorated
with colored cloths ^{or} hanging from
windows and the ~~streets~~ main
street extending about the base

of the hill, on the brow of which is
perched the Chapel, or shrine of
the virgin, is filled with booths,
for the sale of sweet meats, ice
cream, made from snow of the
volcano, small eating booths
peep shows, a merry-go-round
with its hand organ, numerous
sellers of holy pictures consisting
of glaring chromes of the virgin
other personages, vendors of
silver jewelry of barbaric pattern
with hosts of the little silver images
of various parts of the human
frame or of domestic animals
to be used to hang on the dresses of
the saint or virgin to whom prayers
are made for relief.

Around the foot of the hill &
about the church, whenever
a nook offered shelter from the
crowd, were Indian women squatting
about little fires cooking for their
family - the small array of clay pots
about them showing that they had
brought along all of their household
goods. Scattered everywhere in
the crowd squatted other women
with a small clay brasier, in
which burned a charcoal fire,
before them, over which they
made, cooked, & sold various
peppery dishes dear to the
hearts of these people.

About the door of a chapel built
over the spring at the foot of the

hill struggled a dense mass
of people with bottles & claypots
& you'd all striving to get a
supply of this holy water to
take home with them.

A little beyond this I noticed a
crowd gathered in a circle & on
approaching found that about
a dozen Indians, men & women,
were at work executing a
dance in honor of the Virgin.
~~Several of these~~ These Indians
were dressed in tunic & trousers
& sandals with a high ^{crane-like} headdress
of plumes stuck around the border
of a stiff cap set all around
with little square mirrors that
glacked in the sun light.

the plumes were dyed red, green & yellow. A number of the Indians had a quiver of panther skin with bow & arrows thrown over their shoulders and wands in their hands.

The dance was in time to a small drum & consisted of stamping the feet, turning facing about from time to time and certain changes of places to effect obscure figures. It was under the direction of ~~an~~ an old man who also took part and is undoubtedly a survival of ~~the~~ some ancient agtic rite once exercised before the bloody altar of the god whose shrine was

on this hill.

A little later, when the dance was concluded below, these dancers mounted to the broad stone-paved platform before the entrance of the shrine & there, forming in a double line extending out from the door of the chapel, they performed another dance.

These performers were all of rather strikingly Indian features, somewhat curved noses and had a stern earnestness of expression characteristic of the deepest fanaticism & such as might well have been worn by the thousands of their ancestors who went down into

darkness under the bloss of
the Spaniards while trying to
capture the latter alive for an
offering to their god.

The catholic church is a
kind mother to all paganism
as long as it shall be disguised
under the name of ~~our~~ her saints
Inside the chapel a constant
procession of the faithful went
on with boding knees and
fervent kisses bestowed on
the floor, the glass covers to images,
&c. From the wall of the stairway
a picturesque view of the city
& valley with its surrounding mts.
and the surging multitude
below is well worth a pilgrimage

Thalpan notes:- The woman keeping fonda wanted skunk bodies saying that their flesh was very good for bad blood. In Irolo a young soldier wanted skunk bodies because the meat was a good remedy for syphilis.

I was told that a couple of Spaniards hunting near Ajusco in fall before we came there were robbed by the Indians who came up pretending to wish to see their game & suddenly seized the men & took their guns, &c. The Indians here have the name of being great thieves but rarely commit murder.

On Dec. 80th clouds gathered about tops of Popo, & Izt. & concealed them while the wind blew in gusts in the valley. On the latter date the clouds drifted in fragments across the valley, torn from the mass on the mt.

In early am. while the sun is shining on E. side of Izt. the vast mass of west. side of mt. is a deep blue black contrasted with the ghostly form of the white woman. At intervals long filmy strata of fleecy white clouds drift athwart the mt. below timber line showing in brilliant contrast to the ~~shadow~~ ~~dark~~ dark, wooded, shadow-wooded mt. side.

for one of the outer world

DEC 27 1892 Huizilac -
Morlos. After various aggravating delays this morning we got off on horseback to cross the mountains to the state of Morlos. According to our custom in travelling over dangerous roads I went ahead with my rifle conveniently at hand while my assistant rode about 20-25 yds behind with a couple of charges of buckshot in his gun. In this way we hope to make any attempt to take us in rather difficult work. We soon left the valley of Mexico and ascended to the broad summit

of the Ajusco range. The road then took a nearly due south course across a rolling country partly covered with handsome groups of firs & partly a series of grassy parks & slopes. Along the road we passed, in travelling ten miles across the summit, six permanent picket stations of from 3 to six or eight ⁸soldiers. These pickets are on hills close to the road & so situated that almost all of the road is in view from one station or another. This is to prevent the bandits from infesting this district, since the wide stretch of wooded country

on this mt. made it a favorite
place for robbers at one time -
Here, as in nearly every part of
the country I have visited, it
is only by the constant presence
of soldiers at suspected
points that the robbers are kept
in check as much as they are.
Should the soldiers be removed,
the country would at once
relapse into its former state of
lawlessness.

On the southern border of the mt. top
we came to the large, gray,
stone cross erected here to
mark the line of Cortez's ancient
marquisate in Morlos. It is
known as the Cruz del Marquez.

From it we descended a few miles
through a beautiful pine forest
to the little, unkempt village
of Huitzilac where we put up in
a meson, occupying the
usual tomb-like rooms lighted
only by opening the door.

In this place we put in several
days working in the surrounding
Country, which is very mountain-
ous. Huitzilac is situated at an
altitude of 8000 ft., in the
pine belt, but just west
of the village rises a high ridge
which has, along its east slope,
up to 9000 ft. a magnificent
growth of oaks with some madroños

and a great variety of undergrowth
of deciduous bushes.

The vegetation of this hill is
like an intrusive point
thrust up through the pines.
Below, at about 6000 ft., the
pines end abruptly and
the road leads out over the
^{open} grassy slope to the small city of
Cuernavaca, Capital of
Morelos.

On the ~~area~~ Valley of Mex.
Side of the range (Ajusco), the
country is very ~~varied~~
volcanic, but on the southern
slope, although there are also
various small craters & some
lava beds, the main formation

Omit this (It appears farther
along in text)
On arriving at Cuernavaca I presented my
letter of introd. from the Secy of State in Mexico to
the Gov. of Morelos. The latter was absent so I
looked up the Secy of State. The latter was profuse
voluble in his expressions of desiring to aid
my work in any way that lay in his power.

When I put him to a practical test by asking him
if he could aid me to secure a ^{reliable} guide & horses
for me to visit the ruins of Xochicalco. This
was another matter - he replied by asking if I
could not secure them myself!

To this I replied that probably I could, but
I supposed by presenting my letter I should
be able to secure better facilities than I could
by myself a stranger. With a very ill grace
he then sent a messenger to look up a man & horses
to report to me in the morning (at my expense). In the
morning the outfit showed up & I found my-
self riding one of the thinnest, worst riding animals
it has been my misfortune to ride in Mexico.
When we reached the ruin I examined the part that was
apparently asked the guide concerning some other parts
that had been told existed. He denied this claiming that he knew
all about it & there was nothing else to be seen.
On my return to Cuernavaca I was told that

extending down from the ruins
from 8000 to about 4500 ft
the barrancas are cut through
a deep formation of coarse
conglomerate of rounded
fragments of volcanic stone.
The city of Cuernavaca contains
about 12⁰⁰⁰ or 15,000 people &
is built on an arid open grassy
plain sloping to the south with
deep barrancas cutting this
way down from the ruins, following
the slope. The bloodsucking bats
(Desmodus) are common close to
the town in a damp cave, with
a perilously loose crumbling roof,
when I secured some. Many small,
blue, tick-winged bats were also

omit this

he had deceived me. There are said to be a series of underground rooms in the hill below the ruin that are very interesting. From Cuernavaca I went to Guatemala & there I experienced the same discourteous treatment I had rec'd at Cuernavaca when I asked for assistance from the local authorities. I also found the common people remarkably tricky & dishonest in dealing & a general ~~dis~~boonishness in their manner toward me as a stranger that I have encountered nowhere else in Mexico. For this reason it was peculiarly striking & disagreeable and I left the state with no pleasant memory of its people.

found in dry caves near her living behind the huge carved back to the altar in a church. Under the guidance of the sacristan we hunted out some of these latter with cane rods but as I had many of them already, I took no more.

Cuernavaca is a rather picturesque place as it is built on uneven ground between two deep gulches. The old castle of Cortez stands on the brow of one slope and is a large square building now occupied by the local authorities for various purposes.

Aside from the fortress-like character of this building,

it has few striking features.
It lends itself in the forming of
a beautiful picture that I went
to gaze out upon several bright
evenings during my stay
in this town.

From the corner of the old palace,
across a ~~rather~~ loop-holed bastion,
and the low, tile-roofed houses
covering the slopes of the small
valley like gulch, one's eye
passes over the waving fronds
of a fine palm tree rising on
^{top of the} the opposite bank to range
across miles of ~~down~~ ^{from}
rolling plains & hills to the
dark, pine covered base of
Popocatepetl and hence

up to the gleaming white crest
of this mighty peak.

Just at twilight, while the
fading light of day brightens
with a vanishing glow all the
salient points of the landscape
and the eastern sky is taking
on its sable night hues a
few stars twinkling forth
uncertainly, the beauty of
the "Smoking mountain"
is marvellous to see and
its loveliness drew me back
here every afternoon.

The combination of a gracefully
spreading palm with a background
of a snow capped volcanic peak
recalled a picture that I remember

embellished one of my father's
topography's.

There are many memories ^{connected}
with this town, for here Cortez
made a favorite resort & in
this was imitated by Max.
in his unfortunate filibustering
expedition.

From all I could see & learn I
was not favorably impressed
with the officials of this state
although the Gov. ^{was} not there ^{and} I
only saw the secretary of state
whom I found singularly devoid
of courtesy. Presenting to him
my letter from the Secy of State in
Mex. I explained among other
things, being a stranger there,

I would be greatly indebted to
him if he could inform me of
some one who had horses to
hire & a good guide to take me
to the ruins of ^{Xochicalco} ~~Tecamaleco~~.
To this he replied by asking
if I could not find them
myself. To this I made ans.
that if I had supposed I need
expect no assist. I need
from the authorities I need not
have presented my letter of
recommendation. He then
agreed to find the outfit for me
& sent out one of his men-
gers for the purpose. The result
was that the man provided
was one of the surliest fellows I

have employed in the country, &
my horse was one of the worst beasts
I have ridden. The guide lied to me
at the mine & prevented my seeing
one of the most interesting parts.

Coming after the almost universal politeness
with which I have been received & assisted by
~~the~~ the governors of various other states
I was very disagreeably impressed
by the inhospitable character
of the officials of this state.

During my stay at Yutepec
a little later I had additional
cause to complain of a very similar
treatment on the part of smaller
officials & combined with a peculiarly
tricky set of Indian inhabitants I found
Morales a state of no very pleasant character.

(Orig - trip Cont.)


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the eastern, hot, Coast lowlands.
This was shown by the fact
that the Cumuli that all
during the morning hours
had formed and spread out along
the upper surface of the dust
stratum at 11600 ft & seemed
limited by some mysterious
power to that altitude or how
gained power from the rising
columns of air and, bursting
upward, arose in gigantic
Columnar masses of white
~~cloud~~ rounded clouds rapidly
growing until they far
over-topped the summit of the
peak itself. It was fascinating
to watch the creation of these.

enormous ^{aerial} ~~several~~ masses
 one after the other until
 upon all sides, they towered
 up in an array of exquisitely
 & grandly beautiful forms.
 They did not form united
 masses but were so scattered
 that large interspaces of
 cloudless air from horizon
 up to their summits were left
 through which could be seen
 in beautiful contrast the far
 clear brilliant color of the sky
 beyond.

Then I descended once more
 into the atmosphere of the earth
 and the branches of that upper
 world were again enveloped

and colored by the shadow of dirt hanging over it all -

* Extending out to the south from the base of ^{cone} ~~open~~ is a rid of lava with its border all around higher than its center which is a basin-like depression as seen from the side of the peak. The border of this lava rid rises very abruptly, like a steep broken-down wall all around. When we passed around its lower end at the foot of Black Mt. it is about 200 ft high. Its shape is about as follows  (Black Mt.)

Took photo. of this from side of Peak.

The eastern side of this
 lava bed had evidently been
 worn down by a glacier that
 occupied a basin just along
 its eastern border. Another
 glacier flowed down its
 western border & a third
 flowed to the S.E., separated from
 the first mentioned one by a
 high, sharp very rugged lava
 ridge (also phold.) It is down
 into the narrow basin of this last
 glacier that the long, bare slope of
 sand & stones leads along which
 we made our descent.

The afternoon had become quite
 pleasant by the time I reached
 the base of the peak & the clouds

hanging about the summit were gradually becoming less dense.

We remained another night in our cover-shelter, & on the morning of the

21st April -

descended to about 11,000 ft to a potato ranch cleared on a N. slope among the firs & alders.

Here, in the hut of an Indian family we spent six days working the birds & mammals. The Indians living here were a simple, dirty, good-natured lot who, although living in squalor & what would be watchedness to one born to another state, were apparently

men.
For notes on horse to
of this indian family
see last two pages
of this book —

Here

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happy & contented. Their cabin fronted
a broad view across the pine forest
out upon the table-land of Puebla
Malinche looming up in the distance
beyond, on clear days. P. M. 12.30.
Looking back across the slopes
of fir clad hills one's eye was
drawn to the magnificent snowy
peak - of the "Shining Star." During
our stay at this cabin - the
2d day after our ascent - came
a fierce storm of hail & rain with
its & on the peak down to timber
line a ^{heavy} cover of snow. Before
we left, a second storm occurred
of similar character accom-
panied by muttering thunder & a
few lightning flashes.

Game of all kinds except mice
 & birds was scarce - A few
 squirrels & 2 species Lepus & the common
 deer of the southern end of the plateau,
 Lynx & Coyotes were the larger animals.
 Broad-tailed & White-eyed Hummers
 Flickers, Robins, Mex. Bl. ds., White-
 eye. Nuthatches, Crows, Pine
 Siskins, Mex. Crossbills, Mex.
 Whippoorwill, Pipilo, Chipping
 Sparrows, Ravens & Juncos made
 up a fauna quite similar to
 what one might find in the nets,
 of the Western U.S.

(Cloud notes)

The round backed cumuli
over the plains were but a handful
at 7 am. but grew spread horizontally
until much of the country was cov-
ered by them at 10-11 am. during
all this time they kept along the
level of 16000 ft. stratum.

From 11 to 12 I was almost worried
to see that they had suddenly shot
up huge columns ²⁰⁰⁰⁻³⁰⁰⁰ 2-3 or 5000 ft high
above the 16000 ft level exactly like
the column of steam ascending from
the smoke-stack of a standing locomotive
on a cold calm morning.
The same rounded form & slightly
larger top suggested a similar force
from below.

It is at the time that these cloud columns form that the whirlwinds carrying high dust columns begin their fantastic marches across the sandy plain below & that the two are result of one & the same cause is certain.

The day that I ascended Pop. & ~~Sept~~ Aug. a S.W. wind was blowing & on Sept. a S.E. wind blew & that day the dust columns & cloud columns were not observed. The other two days they were seen as noted.

Cuernavaca (Cont.)

Leaving Cuernavaca in the morning I rode across the country for about ¹⁰ or 12 miles to the ruin of Xochicalco. The route was across a sloping plain of scanty soil & much lava broken by numerous steep sided cañons. Scattered over the surface of the country were many lava boulders of small size.

Several large, white-sided Jack Rabbits were seen which made use of their dark back patches in a curious way. When undisturbed they hopped about among the lava rocks, their white sides flashing in the sun, but if alarmed they faced away from the danger & squatted so

to present their backs & soon instantly
lost to sight. Then they would quietly
steal away, 100 yds or so & one would
be surprised to see his game
suddenly begin zig-zagging among
the rocks at a distance from where
he supposed he had marked it down.
This is a curious case of direction & protective
coloration in the same animal.

Xochicalco is on a hill rising on the
slope & overlooking the low country, to
the S., E., & West. Near it I passed
through an Indian village whose
inhabitants are undoubtedly the
descendants of the builders of the
temples on the hill. They now occupy
grass thatched huts with curious clay
storerooms for corn, built like

inverted ovens & and thatched with
steep conical straw roofs.

The sides of the hill on whose top
the temple is built are terraced
with the slopes from one terrace
to the other cut down to a steep
regular incline & faced with
a wall of irregular stones. Some
of the upper terraces ^{at least} were floored
by a hard smooth mortar finish.
as shown in one place where it
has been bored. The temple is
on ~~extreme~~ top of the hill com-
manding a magnificent view.
It is a rectangular structure
enclosed in the centre of a
levelled & paved court surrounded
by the debris of an old ^{stone} wall.

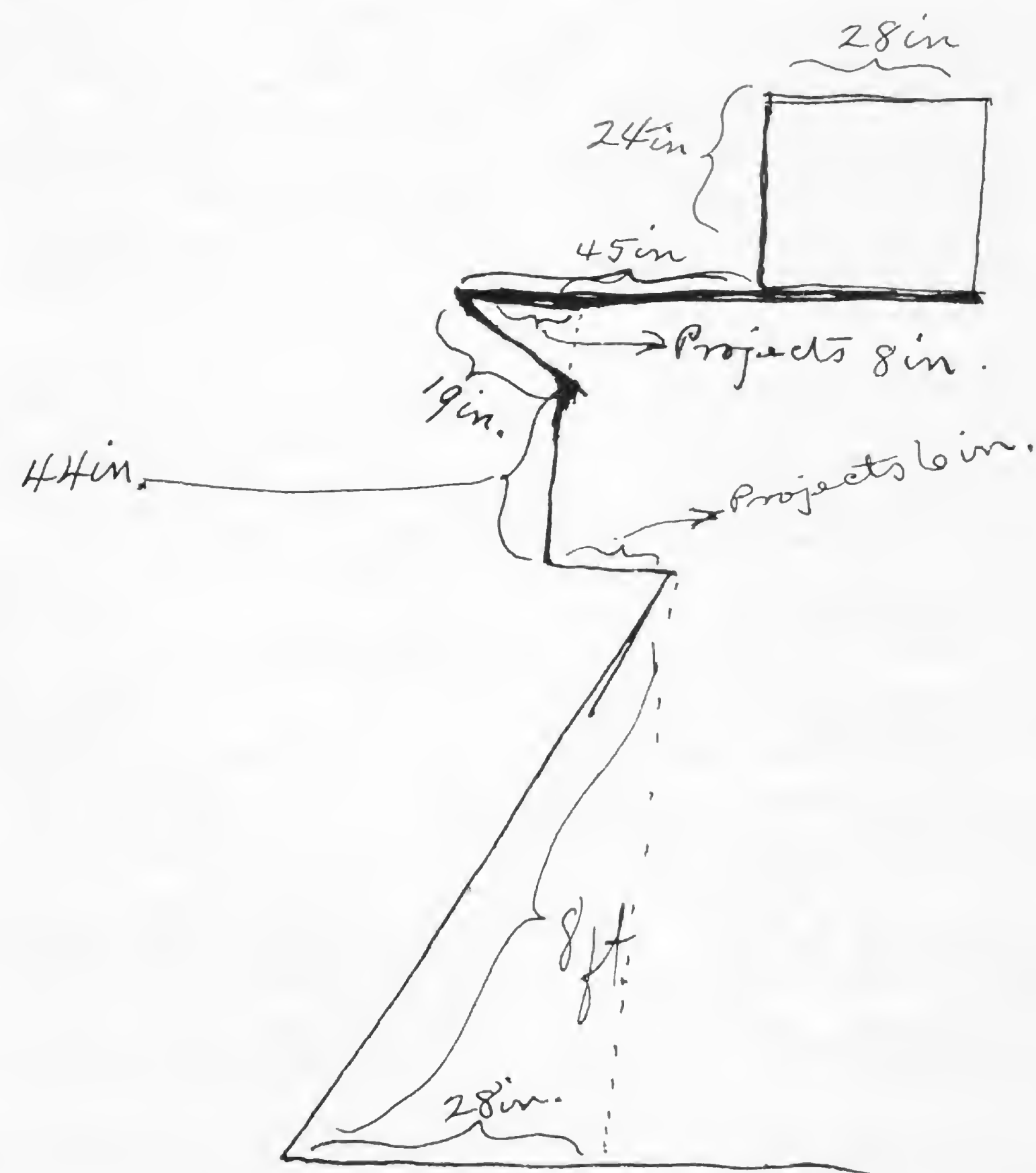
The temple measures 57 ft. along its E. & W. faces, midway from ground to top of standing wall. The N. & S. faces are 65 ft. long. On top two pits in the center with a cross wall between show that the temple had two interior rooms at base.

The only entrance to temple was by means of a broad stone stairway leading to summit. The steps are 15 in. high & 12 in. broad. This stairway occupies all of west face except for 13 ft. at each end. The low surrounding wall of rubble that enclosed the court was only a few yards from the temple wall & was

built partly of hewn blocks & partly
of rubble. It had an entrance or
gateway in front of the stairs
leading to top of temple.

The upper part of the temple wall
has been partly destroyed to furnish
material for a dam at a reservoir
built for irrigating below the hill.
This vandalism is not permitted by the
present gov't. & I was informed that
a local official is charged with the
protection of the ^{ruin} ruin. This protection
is a nominal affair however, since
several large cacti & young trees
growing on the summit are forcing
their roots between the blocks of
stone & tumbling them down.

I made the following measurements of the ruin on one of its most perfect faces. I had the same plan on all sides.



The entire facade of this structure is covered with large

grotesque figures carved in
high relief on the stone which
is carefully dressed & fitted
with smooth faces and made
of large blocks ^{of lava}. The stones of
the top course are 24×28 & con-
siderably longer than wide or thick.
Stones 3 to 4 ft. long are common.
A number of photographs
taken will show the character
of the figures. In Humboldt's
travels he gives a large plate
supposed to represent one
face of this ruin, but it is
wholly fanciful & does not
convey the slightest idea of its real
character. There are said to be
extensive subterranean chambers

in the hill beneath the ruin, but my guide misled me so that I failed to see them.

On a hill about the same height as one with the temple & just east from latter, separated by a low gap from it, is another hill with ^{walled} a lane leading from the gap between the two hills up to its summit where there is a walled enclosure. This hill must have served as a fortification.

✓
I was feeling the effect of the altitude even at the time of my visit & did not explore the hill.

After my return to Casuarua from this trip I had a attack of dysentery which kept with me for some weeks & ran me down very rapidly.

This was due to the cough & ride
in the intense sun & drinking
the water of streams here which
are not healthy.

On one short tramp I made at
Cuernavaca I was just at the
forks of the town when a white-necked
Raven flew over. I shot it & it fell
into the hedge by the roadside. While
I was extracting it a woman ^(Amestijo) came
running out of the small house just
inside the hedge & begged I would
bring her the bird. I asked what she wished
to do with it & she said she wished
to eat its heart for a remedy.
But I would give her the heart so
I cut the bird open & took out its
heart and the woman, having secured a

a small cup with a little ~~brandy~~ ^{brandy},
put the still warm heart in it &
swallowed it. She said it was
an excellent "remedio" for pal-
pitation of the heart from which
she suffered and was profuse
in her thanks. I left the raven in
her care until my return went
on with my companion to some
fat cañons about three miles out
of town where I secured 3 species
of bats in ~~cañons~~ ^{cañons} at the upper
border of the cañon wall.

In the bottom of this cañon near
this point are some high stone piers
for a bridge ordered built by Santa Ana,
but which was never completed
owing to his fall from power.

Jan. 10th 93

From Cuernavaca I hired
saddle animals and proceeded
in a southeasterly direction
about 12 or 13 miles to Yautepec.
The route led across the grassy,
rolling plain from Cuernavaca
two miles passing various small
Indian villages built mainly
of wattle ^{and mud} ~~wood~~ or adobe brick.
The country is brownish lava
boulders, from which walls are
built about the fields. Midway
in the course, we crossed a large
lava bed which is several miles
wide & proceeds from the Vol. Cans
at base of mts. about 6 or 8 m. to
the north. The rough broken
surface of the lava from which

quite impassible for animals,
but for a rudely made trail.
The surface is covered with a
dense thickets of large cacti
(Apuntias & Cereus) with acacias
& various other desert plants.
The crevices of the loose rocks retain
moisture much better, than the
hard soil of the plain, hence
the abundant growth of the vegetation
that is commonly found in
such places.

~~Leaving the lava~~ ^{the} lava ^{field} midway in
the lava field I was startled
for a moment to see 4 men
with muskets under a tree by
the trail but a moment later
saw they were ^{Vacasinos} ~~Indians~~ or

Country guards from some
neighboring village. The rough
surface of plain trees and
other places for robbers to
catch a victim since it
is impossible to go faster than
a walk and in such places
once frequented by robbers
it is now common to find guards
posted.

Leaving the beach we crossed
a series of limestone hills that
form a low N.E. range here
and covered with palm-trees.
On the east side of this range
we descended abruptly
in the valley where Guilford
lives in a thick forest.

This is a large village of a
few thousand people, mainly
Indians or Indian descent.
The place is full of orange orchards
surrounded by sugarcane
fields. It is hotter than Acapulco
owing to its lower alt. &
The oranges here are sweet &
well flavored but suffer from
attacks of a fly which pierces
the rind of the ripening oranges &
deposits from one to half a dozen
or more eggs. The eggs hatch
& the larvae feed on the pulp
of the fruit causing it to decay
& fall from the tree. The oranges
of Southern Puebla (Atlixco &c)
suffer from this same pest.

Atlixco

The flies are so numerous in some orchards that the entire crop is lost. I saw the flies at work. They deposit their eggs on the lower or shady side of the fruit, as it is becoming yellow. These ^{orange} oranges are sold to Indian people who take them to all of the towns of this region as well as to the cities of Puebla & Mex. sell them. The fly is one of the flat, triangular winged species ~~is~~ about the dimensions of a common house fly.

One of the orchard owners told me that he thought this pest was due to the custom of planting corn, alfalfa & other crops near

the orchards.

The vegetation & birds about
Yaukpic are more nearly
typical than at
Cuern. But there is but little
change in mammals. The fever
I contracted at Cuern. became
worse here until it began
to run me down rather alarmingly
- I finally decided to return
to the City of Mex. to recuperate.

Reached City of Mex. Jan. 18
After the next 11 days remained
there. On the 30th had recovered
sufficiently to go out to Ameca
Ameca at S.E. corner of Val.
of Mex. at base of Popocatepetl.
where my assistant has

from staying.
Ameca is the seat of a
Chapel situated on a curious
hill rising about 400 ft
from plain at border of town.
This hill is covered with oak,
madroños with some Cypress
trees at its northern base.

Feb 8th '93 Yesterday
left Ameca. for Yecapixtla
Monlao - & spent a large part
of the day hunting horses
& take me to Tetela del
Valle at 5. base of Popo-
ocatepetl. This was finally
accomplished & on the 9th
we proceeded to San

destination. Tetela del Volcan
turns out to be a miserable
little Indian town among
the pines at between 7000 & 8000
feet on the S. slope of the
Volcano. There was no house
where we could find accommodation
so we were taken into the local
court room & office of the alcalde
where we spread out our effects
got to work. For the next
4 days we lived here, having our
meals brought in by a woman
from one of the houses of the
vicinity. Had it not been for
the official letter I carried, it
would have been very difficult
for us to have got along here owing

to the indifference of the people.
The only exception was the secretary
of the local judge or alcalde.

He was a fairly intelligent fellow
but with education enough to read
& write fairly well & seemed utterly
ignorant of outside life. He asked
various childlike questions about
my country, and among other things,
that he told me as being strange
to him was the putting of manure
on land. He would not understand
what sense there was in buying
fertilizers & putting on land as
he had heard people did ^{in some} in the valleys.
One of the villagers recalled the
fact that all "yanquis" (Yankies)
ever saw me at a very

tall men (6 ft. or more). So this
I replied that I was a Yankee
& was less than 6 ft. & ate the
same food as he did as he
had seen. But still he
objected saying that I could
not be a Yankee for he knew
that they were all very big men
who live on raw meat for he
had seen one once & that raw meat
was very big. So this his com-
panions assented & evidently
discontinued my claim
to being a member of the ^{raw} meat
eating nation. They decided
that I was a Frenchman after
due consultation & when I asked
him what countryman I was if
not a Yankee.

~~From the~~ One end of the building
where I stayed was divided
off into a calaboose & guard
room. The Vecinos were
on guard here all the time
at 3 a.m. The new guard came
in and relieved the guard
of the day before and then
at first sign of dawn sets
of guards armed with muskets
& carbines went out in 3
different directions along
the roads & spent the day in
patrolling & watching road
& paths through the forest
to the limits of the community
since it borders islands & mangroves
& neighboring villages.

The larger towns have their
police regularly employed,
but the small towns are forced
to do voluntary guard duty.
The community own arms &
every able-bodied man
among the villagers is on a
list. The community is then
divided into guard sections
which are ^{each} given their regular
day of duty & are required to
be on hand as noted.

These "vrasins," as they are
called, are met in all
sorts of out-of-the-way places
round about & do much to
make nothing difficult.

They are held to be accountable
for the good order of their districts
by the higher authorities. These vecinos
^{wear} ~~more~~ nonuniform but the everyday
costume of the laboring classes so
that it is a little unpleasant to
come upon them ^{suddenly} in out of the way
places. Robberies occur despite
them at no great intervals, and
my assistant had a narrow
escape near this place. He left
a trail & descended into a
narrow, wooded cañon on
the mt. side one afternoon &
was surprised to see 3 men
follow him, one with a cross,
one with a stout cudgel & the other
with a large knife in his hand.

My assistant at once faced
them & leveling his gun at the
formost told him to stop which
he did very promptly & began to
abuse my man with all the
epithets he could command.
To this the latter paid no attention
but quietly moved off leaving
the discomfitted savages in their
tracks. It is a regular trick for
these mountain Indians to
pretend to wish to see what game
a hunter has, & the moment
they get within reach they seize
the hunter & rob & maltreat,
or kill him. ~~He must be~~
I will not be at this place, a
long time of the Indians for

Thacala

Thacala and Puella began, to
a fiesta of some saint in
southwestern woods.

Hundreds of them strained by for
two days; men, women, & children.

The men & women nearly all
carried a little roll of long wax
candles to burn before the altar.

At night the portico of the public
building where we lodged was made
its utmost capacity by a motley gathering
of pilgrims of all ages & ages. The

nights were sharp & almost
frosty yet they told us of a ^{very} ~~thin~~
rush mat, & covered with a thin
carpet, seemed to sleep com-

fortably. At early dawn all were up
& p. When travelling even when carrying

a heavy load these people, in fact,
most of the Indians of the country, have
a short trot that they seem to
keep up indefinitely.
They carry a backload of goods in
truck or fruit to market 20 to
40 or 50 miles in this way, during
whenever might overtake them,
or I have seen them returning
in a contented frame of mind
with the entire proceeds of their
trip invested in little packets
to be let off at the next post day.
One night the crowd in front of
our quarters ^{waited} united in singing
a hymn in praise of the saint
they were to visit, & the effect
was wild and picturesque.

the voices arose in full in
the rhythmic, chant-like effect
so often the character of Indian
music. About 200 of these faithful
people united in this song.
Sunday at this village was a
day of general gathering from
all the vicinity. In the morning
a mass was said in the
Church. Under the trees in the
small square were ranged
a few market women selling
fruits, ^{confections,} nuts & vegetables.
The public shops & cantinas
were thronged & the men stood
about in groups or squatted
in the shade. The solitary
amusement appeared to be to get

The most amusing part of
this show was toward the end when
a large framework covered with
wheels - squirts and serpents, was
fastened on the head & shoulders of a
active young fellow who, when the
thing was lighted began a wild career
among the crowds of people leaping ^{about}
and rushing head foremost into
the midst of the thickest crowd
causing shrieks from the women
& children & roars of laughter from
the crowd in general. In the
midst of the darkness of the night,
intensified by the gloom of the
background, this figure of a man firing
sparks was diabolical enough.

In the evening a fantastical fireworks
exhibit was given in the Church-
yard. ~~At 11~~ The most interesting
result of this trip was the finding
of *Atlatl's policephala* on the ~~south~~
slope of the mt. above Tetela.

Ameca
On July 13 I engaged horses
& made a short cut back to
Ameca where I continued
for the next 3 days, including
a trip to the city of Mexico, pre-
paring for a trip up the Vol.
of Popocatepetl. On the eve.
of the 16th I had a hemorrhage
of the lungs - the signal to the illness
Shadin morolos. From 17th to 21st I
kept quiet at Ameca & had no return
of hemorrhages.

On July 22nd left Amana
with pack on trail & ascended
to about 11000 ft. on N. slope
of Potocapell (where I camped
under a rock shelter on side of
a steep canon ~~at~~ amid the
pine & fir. (For rest of trip
was out of Vol. of Pap. see notes
written up during that trip in
another book. (See opp. - a
thin copy. See to me)

See other notebook here

Chalchicomula - Mt. Orizaba

April 18, 1893 -

The morning was occupied
in arranging with the men
buying ropes, rush mats
& provisions for the trip
up the peak.

At 5 AM. we were ready to
go but the men changed,
to have horses on hand,
yesterday failed to show
up & I had the pleasure of
exercising some of the necessary
virtue of patience.

About noon it became evident
that it would be impossible
to get horses to start today so
I had my outfit carried

2

back into the room and
sent the men, I had employed
back home instructed to
be on hand early tomorrow
morning. Although I
started in by seeing the
Jefe Politico yesterday morning
and getting his word that
he would send and get the
outfit I do not seem to
be much advanced toward
it. The day is the finest
we since I have been here -
clear, calm and bright &
the snow peak stands
up brilliantly white in
the sunshine.

Guides acc. ^{Francisco to Vinas} / ^{Gregorio Contador}

near Francisco's cabin
Camp near Jose Maria's mine

Therm. at 3 a.m. at camp
timber-line Apr. 20 36°
At Summit at 11 a.m. 34°

April 19 1913 - Mr. Orizaba
Last week I went to the Jefes Politics
& told him of my failure to secure
horses & he promised to have a couple
of saddle animals on hand for me at
7.30 this morning.

They were now on hand at 6 a.m. &
I started the camp outfit on the
pack animals. At the time agreed
upon the two saddle animals promised
by the jefe were on hand. They were
about the sorriest brasts I have
used in the country but we were
not in a position to object so mounted
and set off with two of our Indian
companions keeping us company
on foot. We found it necessary
to employ 4 men - 2 guides to

make the ascent with us, one man to look after the horses and another to keep charge of camp & our outfit during our absence. All Mexicans who live in a small Pueblo a few miles out of San Antonio at base of foothills. The two guides were men who have worked gathering sulphur on the peak.

We now soon outside of the town and passed for miles along a winding road that led through sandy fields covered with stinking wheat.

Poor thatched huts of the Indian people were scattered along in irregular conjunction to

5
from the barrio de San
Francisco, about a league
from San Andrés.

Here & there the white groups
of Hacienda buildings were
to be seen and patches &
points of pine timber
not yet cut away.

As we left San Andrés we
ascended a sharp slope, the
bluff-like drop from a
higher terrace. In this were
to be seen sections of deposits
of ^{fine} slaty black volcanic sand
that had been thrown out by the
volcano. Other layers of a paler
grayish yellow sand of
coarser material alternated

and ~~numerous~~ deposits
of finely broken white pumice
stone, bearing ^{crystals of} iron pyrites
was ~~interposed~~ ^{one} of these
beds lying upon them.

~~Layers of volcanic deposit~~
~~are from 10 to 20 ft. & consist~~
~~of sandy soil brought down by~~
~~the elements from higher levels.~~
This layer of white pumice
is almost wholly free from
foreign matter & varies from
2 to 7 ft. in thickness near
Chalchic.

~~As we went toward the west~~

~~and~~ lying above this pumice but
at what distance I failed to
determine is a layer of fine

~~The~~ bluish black vdc. sand
 which is only from 1 to 2
 ft. thick near Chal but near
 the base of the mt. it is from
 10 to 20 ft. thick. This layer
 lies near the surface of the
 ground & was deposited
 after the contour of the country
 became practically the same as
 it has today. It follows the
 slopes of the hills down to the
 washes & deep drainage ways
 both on the border of the
 plain and all up the
 side of the mt. to about 10000
 ft. Beyond this ~~the~~ I saw
 no exposures when it could
 be traced - probably due to

glacial obliteration above
that point.

Above this black layer is
the surface soil varying from
a foot or two up to 20 ft
or more according to the
situation. This surface
soil is a fine yellowish
sand at the top with fine
intermixed gravel, of junice
& scoriae, below. This is
apparently the result of denudation
& disintegration of the higher
peaks.

A few miles out of Chal. we
crossed a small cemented
aqueduct carrying the brilliantly
clear water of a large spring

✓
 near the foot of the mt.
 down to ~~San Antonio~~ Chal.
 In the trees & bushes (oaks
 valders) along the roadside here
 were great numbers of birds
 evidently drawn here by the
 water in the open flume.
 A drink from the sparkling
 stream we went on, winding
 up among the staking wheat
 fields and soon reached
 the border of the pine timber
 at about 9000 ft. Up
 to this point the geomys
 & Dipodomys of the plains
 follow the cultivator but
 stop abruptly with the border of the
 unbroken forest.

after the end of the fields,

At first, the road led up a broad gentle slope covered with slender pines ^{forming} an open forest.

The ground was covered with fallen needles, but of grass & other small vegetation there was almost none.

Most of the lower branches of the pines were dead & the almost total absence of birds or other signs of animal life gave the wood a sad loneliness. Here & there a Junco flitted from the ground up into a tree or one sang its short unmusical ditty from a branch overhead.

Having passed the gradual slope,
 we came to the much more
 abrupt rise of the main base.
 There dark firs & ~~large~~ alders
 with curiously swollen,
 thick bark. Among the
 firs a plentiful growth
 of saccaton grass is found
 & here were scattered half
 naked Indians digging
 it up to obtain its stiff
 roots which are sold to make
 short brushes.

Here also we found various
 potato fields in cleared
 places among the firs &
 alders. The latter trees
 often attain 3 ft in diam.

±50 or 60 ft in height.

One of my guides was joined here by a couple of his sons who led us to a small spring in a ~~flat~~ shaded canon where a couple of tree trunks had been dug out for troughs for the accommodation of the cattle. By that a fire was quickly built & we had a lunch while the Pigney Nutcrackers hammered away over head on the dead branches of the fir & made a noise quite out of proportion to their bulk.

✓ Moving on up the ~~path~~ trail that was very steep along

Here we left the fire at about
10,500 ft. & entered a belt
of large pines of 2 species both
with heavy rugose, almost
cannulated bark.

Still up over the slopes until,
at about 11,000 ft. we entered
the lower end of a draw
which developed into the
lower end of an ancient
glacier bed as we advanced.

Then was the terminal moraine
carrying large boulders on
its back & the sweep of the
hills on either side showing
where the ice had curved
its way down from the lofty
heights of the volcano.

rugose
cannulated

moraine

that towered up & was lost in
the clouds to our left.

As we continued the trees
grew scattering & dwarfed
& those in exposed places often
leaned to the east as if to es-
cape the fierce winds that must
sweep across these high
slopes. Here the hills raise
smooth, grass covered slopes
above the timber, - the broad
bluff-like end of a great
lava stream rises above
as we wind around its
base - The sight of a
marsh hawk soaring along
the juniper-clad face of this
lava slope at the timber line

was rather curious.

A few small lizards skurrying over the warm faces of the lava blocks near the trail with scattered tracks of mice, rabbits, & a Coyote ~~cat~~ were the only signs of life. The grass growing in scattered bunches with sandy bare, sandy interspaces was the main vegetation; only in occasional places were to be seen flowers of one or two species of *compositae*.

"We passed the end of the lava bed & going on for some 3 miles beyond descended into the head of a small, pine grown canon and camped at a rock shelter

fire in the
? wood
(on page 169)

formerly used by the Indians
 who were employed to gather
 sulphur at the border of the crater.
 The small spring of water which
 comes out here was the source of
 attraction. The altitude was about
 13,200 ft. but being on the S.E.
 side of the mountain was a few
 hundred ft. below timber line.
 Our animals were turned down
 into the cañon to graze & we
 formed camp. Some Arctic blue
 birds, robins, juncos, nuthatches
 and flickers were seen &
 heard here. Among the rocks I
 caught a Neotoma here & a Sorex,
Arvicola, Oryzomys & Sitomys
 were common in the tall grass on

sides of the cañon. As soon as night set in the clouds that had hung over the mt. nearly all day began to break away, but a high wind rushed through the sturdy pines cresting the cañon walls and filled me with considerable anxiety for tomorrow. As the sky cleared the stars twinkled & flickered more than I had seen them before at this altitude & I feared a high wind tomorrow. My men assured me that it was an impossibility to climb the mt. if a heavy wind should be blowing as it would sweep one off the steep slope.

Then they began discussing
among themselves, for my benefit, the
various animals claimed to live
on the summit. All agreed - as did
my guides at Popocatepetl - that a
^{kind of} pure white mouse lives
about the summit of the ^{volcano}.

Then a white ^{snake} was
located there & finally one
of the men began to tell of a
white skunk but this was too
much & all of them began to
laugh & ridicule him -

I soon hid my bed down under the
shelter of the smoke-blackened over-
hanging rocks - The men clustered
up about the fire on the saddle
blankets & their chatter soon

ceased - The fire flickered
low and across the canon I
could see the dark swaying
arms of the pines as they sighed
& writhed under the lashing of
the wind - the stars flickered
and glittered mockingly, &
then I forgot everything in
sleep.

April 20th
Ascent of Mt. Orizaba

At 2 a.m. I awoke the
men out & so slowly did they
move that it was four before
we finally got off. The wind
was gone and the stars seemed
to shine from a black void
as we picked our cautious
way out from the bright firelight
into the inky depths of the canon.

Finally we were out of it and leaving the trees behind would silently up across the steady slope of sand, covered with scattered grass & bunches, that leads to the foot of the volcano, or final rise of the peak. Before us was the loom of a great dark mass blotting out the stars far toward the zenith. As we reached the open slope a chill breeze moved the air enough to be unpleasant.

We plodded slowly along our horses by their frequent stops & hard breathing showed that we were getting well

up. Finally, a pale gray tinge in the east, over the shoulder of a rugged spur of lava showed that the sun was near the horizon.

Then the figures of our men became more distinct as the pale yellow bunches of grass could be distinguished about us & the snowy sides of the volcano to come out of their enveloping darkness.

The gray east threw its cold, pale, mysterious light over the landscape until it had the same dead, ghastly effect that one gets on an arctic landscape at summer midnight when the sky has lost its colors.

22
The high ridge ^{lava with its} ragged
outline ~~to~~ ^{to} horizon as the dawn
now seemed to almost over-
hang us as we toiled along
its base. A head glanced
out some small snow-
banks the lower ones of their
kind. As we reached these
the stars had been swallowed
up by the gray dawn so that
only few large ones low down
in the west could be seen.

Looking back from here,
it was evident that the
valley-like basin sweeping
down from the foot of the volcano
where we stood, with the
scattered boulders, often

of great size, on the middle
of its otherwise unbroken
surface, was once a glacier
bed leading down & ending
somewhere near our camping
place -

Passing up the old trail of the
sulphur gatherers & snow gatherers
we rounded the upper end of
the high, comb-like lava ridge
& dismounted by a huge lava
boulder deposited here in the
gap by the retreating glacier.
Other similar boulders were
all about but most of them
shivered into innumerable
fragments, all with conchoidal
fracture, by the weather.

The dead gray of the ^{dawn} began
 to be vivified by a saffron hue
 now & as we began to move up the
 sandy slope leading to the rugged line
 of dark lava up which our course
 lay. Soon a warm glow of color
 tipped the snowy peak and
 the dark summit of Black Mt
 to the south warmed up to a
 rich brown. The dead world
 seemed to breathe again &
 the faint note of a junco was
 heard in a cheerful note
 even up to the 15000 ft where
 we were - Near ^{14500 ft} ~~the faint~~
 the grass ceased entirely
 but several mosses & lichens
 held their own even up to

16500 ft. where they were
found sparingly scattered in
sheltering crevices in the ~~granite~~
lava.

At 15500 ft. an Audubon's Warbler
Warbler was seen flitting from
rock to rock, - the highest point
at which I saw any bird on
this peak. At ~~the same~~ ¹⁵⁴⁰⁰ ~~15500~~
ft., some hundreds of ft. above
the last blade of grass or
flowering plant I was sur-
prised & interested to find
the tracks of quite a number
of Sitomys leucopus ? in
the fine, absolutely bar-
volcanic sand lying about
huge boulders - & from these

leading away to other
boulders on all sides.
What these little tracks could
be doing up here was beyond
my ability to surmise.

This is the highest point
reached by any mammal
in Mexico so far as my
observations go on the 3 highest
peaks. In its widespread dis-
tribution over North America this
is one of the most remarkable little
mammals of our fauna. It
is very similar to the pretty little
white-footed field mouse of all
the eastern states. After we
began climbing among the
long line of loose rocks & spar-

like points of the lava ridge leading up to the summit the way became very steep but not at all dangerous.

Far up above us stood out the knob-like, gray mass, rock just below the summit & known to the Sulphur gatherers as the outlook - mirador.

As usual, the leather-lunged Indians were in advance & evidently regarded with some contempt the lack of ability to keep up with them. For every fifteen or twenty yards of advance I found it necessary to stop and regain my breath - time not lost however as it

*
I noted on this mt, as on
those near City of Mex., that the
vegetation ends without the appearance
of any of those arctic forms
which are to be found in the U.S.,
no red snow above this. The
trees become shorter & stouter but
neverly struggle to an end
without that dwarfing ~~the~~
^{leaves of} to matted shrubs & none of the
matted thickets of low bushes
which are found at timberline in most
of our woods - no aspens -
The few dense junipers at end of the
line had at timberline on Dry - & also one
Syl. at timberline with the red rock app.

gave me the opportunity to look
abroad over the panorama
which the rising sun was changing
in appearance at every
moment. * As day dawned
I noted that the lower hills
about us seemed obscured
in fog or clouds & that it
appeared to extend out over the
valleys & blot them out entirely.
With my greater elevation & the aid of
the sun I was now able to see that
what I had mistaken for fog or cloud
was nothing but the great dust
stratum overlying the earth.
At eight o'clock only 2 or 3
cumulus clouds were to be seen
far away toward the horizon.

At nine o'clock I had
 reached an elevation a
 little above 16000 ft. and
 found, what I had noted
 back on Popo. & Sgt. -, that
 the heavy dust & smoke layering
 stratum of the lower air
 was abruptly limited at
 about 16000 ft. Above ~~to~~
 spread a sky of the most intense
 turquoise blue I have ever
 seen - except on the summits
 of the other two peaks.
 This brilliant sky extended
 down unchanged in brilliancy
 almost to the very horizon of
 the dust layer. Far away
 to the west - gleaming white

* 30a

As on my former climbs, this stage
limitation of the earth's dusty air
at 16000 ft. formed an upper horizon
unbroken except by the white,
✓ rounded backs of cumuli in the
distance. Looking down through
this atmosphere the faint, ^{and faint} cer-
tain details of the lower features
of the landscape could be made out
exactly as one might see the
bottom of a pond through slightly
murky water.

Below this limit of 16000 ft is
the place of all earthly life
in this region, & above it the
realm of stars & sun & planets.
Like snowy islands of an Arctic sea
rise the peaks of the 3 mts. in

30

in the sun I could see the
crests of Pop. & Sgt. rising
into the clear air above
the layer of dust. But with
all their bases below 16000 ft
concealed as effectively
as though they were snowy is-
lands rising in the midst of a
dun brown sea.

✓ Then over the surface
of this dusty sea I began to see
newly forming cumulus clouds, ⁱⁿ
their upper borders resting along
the surface of the sea like
the foam of breakers on a
shoal. ~~Later~~ At 10 a.m.
the upward currents of warm
air ^{from} the plains began

a little group & no companion
 peaks pierce this sea of air
 until one journeys far away
 to the Andes of S. Am., or high up
 along our N. W. Coast where
 a single fellow is found in
 St. Elias.

to Climb along the mt. sides &
 I was disappointed to see ragged
~~gray~~ clouds begin to form
 here & then along the mountain
 & down along its sides below
 us as though by their own volition
 for the breeze accompanying
 them had not yet come to effect
 the air at our altitude.

These clouds now rapidly mul-
 tiplied and out on the surface
 of the dusty sea was forming
 a host of beautiful Cumuli.
 Their upper surfaces, ^{floating above the smoke} rounded
 and billowy and snowy white
 but the lower parts softened by
 the smoke through warm grays to the
 almost blue black under

surfaces. Thousands of
feet overhead now began
to form a lace-like filmy
gauze of cirrus that could
not have been less than
25000 ft. in altitude.

W

Read to her

32

When ~~we were~~ ^{we were} within a few hundred
feet of the top, we left the lines
^{base} of lava along which we had been
picking our way and worked
over the sun-eaten surface
of the thin layer of snow
that encircles the crest.

Then the misty cloud fragments
that had been chasing one
another about the base of the
peak came swirling up about
the summit and the wind
blew furiously. ~~At~~ A severe
headache that had been with me
all the morning now began to
become especially painful with
it a nausea & feeling of general
shakiness that made the last

part of the ascent very difficult. Several times I was forced to stop on the steep snowy slope & lean heavily on my alpenstock to avoid a dangerous fall due to sheer weariness or loss of control of my muscles. This would pass off and I would work on a few yards further.

As I had no trouble of this kind on either of the other peaks I attributed it to the fact that I had been suffering from a severe cold for a week previous to this ascent and in consequence, was in poor physical condition to meet the exertion.

* The men were awaiting me sheltered within the lips of the Crater inclining on a narrow slope of sand & ~~fine~~ fine scoria mixed with small fragments of sulphur which descended a few feet below them & then dropped into the abyss of the Crater.

The approach to the Crater is abrupt so that one is on its verge without warning and the effect is rather startling.

The Crater is a huge chasm some times greater than that on Popo, & much more effective for that reason. It must be 1800 ft deep from the side on which we approached - the S.W.,

But is lower on the opposite side - It is about 600 x 500 yds ~~wide~~ in diameter, - its longest dimension is in a north-south direction & is irregular in outline, being broken up by ^{small} bays or The contour of its upper edge is also irregular the highest point on the west side being several hundred feet above the eastern valley of the crater. The drop is perpendicular from the top down to the ^{*} talus lying at the bottom. While I was at the summit there was a constant dropping of fragments from the high walls of the crater thus making a slight

Tulus

✓ rattling sound as they struck among
 their fellows. At one point of
 the wall it is not very far down to the
 talus & my men said that when
 they were sulphur gathering here some
 years ago one of the men was let
 down by ropes & gathered much
 fine sulphur for them. While they
 returned to the base of the rock with
 it he remained to get more but
 a fierce gale sprang up and blew
 so hard for three days that no one
 dared go up the rock. When the gale
 abated they hurried up to the border
 of the water calling the name of
 the man & found him a corpse
 frozen in place. A week
 more & he had been blown down

down to lower Anson where they
 seed it for 8,000 a hundred.
 In this way, it made about 100
 a day. The main summit is
 at the ^{SW} end of the center, &
 just above where we reached its
 border. It was a small flat
 knoll just back from the
 main ridge. It was surrounded
 by a low wall of ash, which
 some people thought was a
 new one. It was a little
 finally.

While I lay idly waiting on the
 ashes at the mouth of that crater
 the wind came blowing from the
 north & the snow on the summit
 now on the way down the mountain.

* The clouds sweeping over the summit had a strange, dry, dusty odor as though they were made up of something beside vapor. I noticed this odor each time that the clouds enveloped us, after a temporary clear spell, all the time I was on the summit. The clouds were pale gray in color & no sign of mist or other precipitation came from them.

✓

...the whole ... was a boiling ... toward ...

It was a ... scene and up from the ... the ... flowers ... heavily ... that ... with the ... valley. But ... round ... mouth ... later ... *

Below, on every hand, the
 clouds had multiplied until
 the water was hidden & the
 rock lay a vast gray white
 sea in 2000 yds. below
 the low clouds.
 My horse was a little milken
 days many times as long, to seem
 to be a little longer.

One of the most beautiful
 silver, light colors of the Gulf.
 I am not so sure, for we are
 on a desert island in the
 or the high, thin air.
 Soon after we began the descent
 and, after picking our cautious way
 down the steep, the low slope of
 sand & small stones, we were

travelling. There is a
 layer of soft fresh snow
 on this side of the mt. the
 men make a path back thru
 (Corvidas) ...
 They take a ~~thing~~ such mat &
 it about their shoulders they
 thrust ... a good iron
 toward the ... through
 the mat ... the ...
 then go for a ...
 3 or 4 ft to the bottom.
 Through the loose coral
 (coral) & small stones was big
 giant strides that ...
 12 or 15 ft. at a step owing to
 the sliding of the loose material

Photographs on Cofre de Perote
2 of Cofre from S.E. ~~Edad~~.
1 of old Crater border?
2 over forest to north - thro. clouds.
(glacier meadows)
2 of glacier bed S.W. of Cofre.
extending S.E. to N.W.
2 Views from side of mt. across plain
to Dztac, with Matuche.

(Front for cont. of this page - 42

Several times this surface material
got to travelling with me so rapidly
& to the amount of several hundred
pounds, that I had to sit down
in the midst of my miniature
avalanche & dig my alpen-
stock into the surface until
we came to a standstill.
Looking soon after noon the
clouds that had hidden the
summit for some time broke
away and ^{mainly} dispersed leaving
visible a vast array of
gigantic cumuli riding on
the airy sea above the plains.
It was now the heated part of the
day on the plains of Puebla at
noon - even so as well as on

Oriaba Photographs

Apr. 24/93

1. Peak of lava ridge. S. base of Cone.
- 2+3 Ascending ridge of baked lava on S. slope.
- 4 Clouds at 16000 ft.
- 5-7 Crater
- 8 Clouds at summit
- 9 Flaccid boulders in basin at S. base of Peak, just above timberline.
10. Gen. view of peak from S.
- 11-14 Camp at timberline.
- 15 Timberline S. side Peak.
- 16-17 View of Peak from forest on S.W. side.
- 18 Vol. of snow near Chalchicomula
19. Side. Also a piece of lava stream on S. side of upper canyon of dust at 16000 ft.

* Ind. Fairly on Dry
 Low hut or ^{split} ~~small~~ ^{low dome pitched} ~~small~~ slabs of pine. A ^{trap} of shales held in place by blocks of wood on a framework of poles lashed together with maguey cord. The walls are of slabs set on end with lower end in a shallow trench filled with earth & their upper ends resting against the stringer.
 First floor - fire in middle & no outlet for smoke except the wide cracks in the walls. Roof 6 to 8 ft high & shining black from the smoke of the pine wood.
 A rude ax, hoe & mattock made up the tools of the man. ^{+machete}
 A small ground - two clay saucers 2 small clay bowls, six small clay jugs & pots ^{the largest holding} ~~just about~~ about 2 qts. A slab bench made up the culinary outfit. 3 or 4 small rush baskets formed stor. house.
 A rude slab bench on one side ^{rowed} as general receptacle of food & a single rough stool made up the furniture.

Oryaba Photographs

Apr. 20/93

1. Peak of lava ridge. S. base of Cone.

2+3 Ascending ridge of broken lava on S. slope.

4 Clouds at 10000 ft.

5-7 Crater

8 Clouds at summit

9 Flacio boulders in basin at

S. base of Peak, just above timberline

10. Gen. view of peak from S.

11-14 Camp at timberline.

15 Timberline S. side Peak.

16-17 View of Peak from forest on S.W. side.

18 Vol. up from near Chalchicomula

W. side. Also a view of lava stream on S. side of up for horizon & dust

* Ind. Fairly on Orizaba
Low part of roughly ^{split} ~~split~~ slab of pine, ^{cordons} ~~cordons~~ pitched by blackwood on a framework of poles lashed together with maguey cord. The walls are of slabs set on end with lower end in a shallow trench filled with rocks & thin upper ends resting against the stringer.
First floor - fire in middle & no outlet for smoke except the wide cracks in the walls. Roof 6 to 8 ft high & shiny black from the smoke of the pine wood.
A rude ax, hoe & mattock made up the tools of the man. & machete
A small ground - two clay saucers 2 small clay bowls, six small clay jugs & pots ^{the largest holding} ~~holding~~ ~~about 2 qts.~~ ~~a slab~~ made up the culinary outfit. 3 or 4 small rush baskets formed storeroom.
A rude slab bench on one side ^{raised} ~~raised~~ as general receptacle of food &c - & a single rough stool made up the furniture.

- ✓ *Am. Saps.*
- ✓ *Junco. cin.*
- ✓ *Am. Red.*
- ✓ *Turdus* — *Sialia mexicana*
- ✓ *Sitta pygmaea*
- ✓ *Colaptes cafer*
- ✓ *Dryobates stricklandi*
- ✓ *anduboni* (also at)

On the bare ground upon a fragment of rock mat — less than a board of logwood slept the man, wife, & baby, of course, covered only by the cotton clothes they had worn at day & a wrap. Water is at a spring about 500 yds away & is brought up 2 or 3 quarts at a time as it is absolutely necessary. Potatoes with a very few tortillas make up their food. With an occasional onion or dash of red pepper.

Plants sent in from Huizilac

- 1 Long-leaved Pine
- 2 Quercus
- 3 "
- 4 alnus
- 5 "
- 6 mint plant
- 7 - cone pine

Salagor - 2 trees

- 1, 2 Quercus: 2 Small cones pine of mat.
- 3 Pine medium (up to 7 ft).
- 4 " large (top of mt)

Quercus Trees.

- 1 Pines 10800 - 9000 ft
- 2 " 11100 - 9500 ft
- 3 " 8500 - 10500 ft
- 4 " 8500 - 9500
- 5 Quercus 9100 - 10000
- 6 " 8500 - 10000
- 7 " 8500 - 9500
- 8 Purple conifer
- 9 Small cone pine
- 6 Long-seeded flower
- 5 Long-seeded flower
- 4 Madrone
- 3 Thorn apple
- 2 White-leaved Conifer
- 1 Rusty

(Quercus given)
8500 - 9500

Flowers from Quercus
July 3/93 - 8500 ft.

